From: Mark Semmelmeyer [mws@ghidra]
Sent: Tuesday, November 01, 1994 8:58 AM
To: 'Jeff Marr'
Cc: 'euterpe@ghidra'
Subject: 4 bit group ops

jeffm wrote:

> In article <199411010450.UAA09495@aphrodite.microunity.com>,
tbr@aphrodite.microunity.com (Tim B. Robinson) writes:
> |>
> |> The 4 bit group arithmetic operations (gadd.4, gsub.4, gmul.4,
> |> gumul.4, gmuladd.4, gumuladd.4) will not be supported.
> |> These operations are bein eliminated in order to reduce the atom
count
> |> of the data path, hopefully to the point where we can make it fit.
> |>
> What about the other 4 bit group ops - are they supported?

Except for GSet, they are all XLU ops and ARE supported as tbr mentioned somewhere else in the mail. However, dickson told me that the GSet.4's are gone, and I made them illegal. Also note that EGFMul64 is not supported and illegal.

I just discovered that I failed to make the GMulAdd cases illegal, but they would not give correct answeres if you try them.
I will fix that soon.

From: Geert Rosseel [geert@rhea]
Sent: Tuesday, November 01, 1994 9:53 AM
To: 'geert@rhea'
Subject: pager log message

```
page from geert to geert:
pageme gmake gards/geert_euterpe-iter.gplace.lis start:Nov_01_06:47 end:
Nov_01_06:51 exit 1
```

From: Lisa Robinson [lisar@polyhymnia]
Sent: Tuesday, November 01, 1994 3:16 PM
To: 'craig@polyhymnia'; 'lisar@polyhymnia'
Subject: Registered copy generated

```
Copy created by:     lisar
Copy created at:     Tue Nov  1 12:15:51 PST 1994
Copy number:         278
Copy registered to: Doug Artman
Input file:
/u/craig/documents/Terpsichore/Terpsichore.macps.gz.des
Output file:         /u/craig/documents/Terpsichore/Terpsichore.ps
Printed to:          rsh plotter lpr -PCraig
Recorded in file:    /u/craig/documents/RegistrationLog

[This message generated by /u/craig/bin/macpstops]
```

From: sysadm@gaea on behalf of Jeff Marr [jeffm@microunity.com]
Sent: Tuesday, November 01, 1994 4:09 PM
To: 'euterpe@gaea'

In article <199411010450.UAA09495@aphrodite.microunity.com>,
tbr@aphrodite.microunity.com (Tim B. Robinson) writes:
|>
|> The 4 bit group arithmetic operations (gadd.4, gsub.4, gmul.4,
|> gumul.4, gmuladd.4, gumuladd.4) will not be supported.
|> These operations are bein eliminated in order to reduce the atom
|> count of the data path, hopefully to the point where we can make it fit.
|>
|>
What about the other 4 bit group ops - are they supported?
--
Jeff "You never snore in freefall." Marr

From: Lisa Robinson [lisar@polyhymnia]
Sent: Tuesday, November 01, 1994 4:17 PM
To: 'craig@polyhymnia'; 'lisar@polyhymnia'
Subject: Registered copy generated

```
Copy created by:     lisar
Copy created at:     Tue Nov  1 13:16:45 PST 1994
Copy number:         279
Copy registered to: Ronald Hunt
Input file:
/u/craig/documents/Terpsichore/Terpsichore.macps.gz.des
Output file:         /u/craig/documents/Terpsichore/Terpsichore.ps
Printed to:          rsh plotter lpr -PCraig
Recorded in file:    /u/craig/documents/RegistrationLog

[This message generated by /u/craig/bin/macpstops]
```

From: Lisa Robinson [lisar@polyhymnia]
Sent: Tuesday, November 01, 1994 4:27 PM
To: 'craig@polyhymnia'; 'lisar@polyhymnia'
Subject: Registered copy generated

```
Copy created by:     lisar
Copy created at:     Tue Nov  1 13:27:04 PST 1994
Copy number:         280
Copy registered to: Larry Yamano
Input file:
/u/craig/documents/Terpsichore/Terpsichore.macps.gz.des
Output file:         /u/craig/documents/Terpsichore/Terpsichore.ps
Printed to:          rsh plotter lpr -PCraig
Recorded in file:    /u/craig/documents/RegistrationLog

[This message generated by /u/craig/bin/macpstops]
```

From: Tom Laidig [tom@clio]

Sent: Tuesday, November 01, 1994 4:52 PM

To: 'Tim B. Robinson'

Subject: Re: mnemo and pandora

Tim B. Robinson writes:

> |
> |Tom Laidig wrote (on Sat Oct 22):
> |
> | Tim B. Robinson writes:
> | |
> | |Do you know if mail to these aliases ends up in a news group (like for
> | |euterpe)? (I'm not a news reader, so I'm not sure how to check). I
> | |had asked for it to be set up that way, but a glance at the
> | |etc/aliases file leads me to suspect it may not be the case. If not,
> | |can you get it fixed please?
> |
> | For mnemo checkins, I decided to reuse the muse.checkins.mnemosyne news
> | group.
> |
> | The pandora checkins are going into muse.checkins.misc (as are a lot of
> | other things -- we haven't created any new groups for quite a while).
> |
> |Actually, I wasn't referring to the checkins. If I under stand it
> |correctly, `mail euterpe' results in something permanently logged in
> |muse.euterpe or some such. That's what I'd like to be happening for
> |the mnemo and pandora aliases. I'd asked ken to set it up that way,
> |but I wasn't sure if it had happened.

Sorry, just ran across this message lying under a rock, metaphorically speaking. It looks as if mail to `pandora' goes to the news group muse.pandora. However, mail to `mnemo' doesn't appear to be saved anywhere.

--

Tom L

From: Tim B. Robinson [tbr@aphrodite]
Sent: Tuesday, November 01, 1994 4:57 PM
To: 'hestia@aphrodite'
Cc: 'noel@aphrodite'; 'arya@aphrodite'; 'rich@aphrodite'; 'yves@aphrodite'; 'albers@aphrodite'; 'woody@aphrodite'
Subject: Netlist meeting notes

The phone, audio and video sections are complete and approved by the designers.

We are waiting for the final footprint and pinnout of the second rev of the bandsplit filter board, final placement of the contingency VCO blocks, power plane distributions, and divisions of the RF ground plane.

Actions: arya to provide final bandsplit definition by Tuesday lunch.
noel/rich to resolve remaining VCO interaction issues.
yves/arya to document power planes per last week's meeting.
arya to specify required RF plane splits.

We need another ECO to pick up the changes for the fan power and front panel connector resulting from the top/bottom fan change

Action: woody/albers read in the ECO

We need a definition of the fannout pattern for the 40A power connections to the DC/DC module

Action: noel to define and call meeting Wednesday to finalize ground planes.

From: lisa
Sent: Tuesday, November 01, 1994 5:19 PM
To: 'software-checkins-dist'
Subject: gnu-tools/sim/terp trace_types.h

```
Update of /p/cvsroot/gnu-tools/sim/terp
In directory calliope:/N/auspex/root/s6/lisa/src/gnu-tools/sim/terp

Modified Files:
      trace_types.h
Log Message:

Added a register-commit trace structure to the union.
```

From: Jeff Marr [jeffm@ares]
Sent: Tuesday, November 01, 1994 5:31 PM
To: 'euterpe@ares'
Subject: meltdown inhibit and power on default bypass

Are the meltdown inhibit and power on default bypass signals into euterpe going to be available on pins in the packaged chip, or will they just be used for wafer test?

Where should their function be documented?

jeffm

From: Chris Michael [michael@ares]
Sent: Tuesday, November 01, 1994 6:05 PM
To: 'euterpe@ares'
Subject: CSM models

Design Folks,

New models have been checked-in for our chosen CMOS foundry, CSM.
The path to the HSPICE model library is:

.lib '/u/chip/technology/csm/hspice/models.lib' csm_60

The model library was constructed to make simulations using these CMOS models as transparent to the user as possible. The same flavors of MOS models (NS, PS, N, P, ...) and diode models (dwell, dsub, DW2SUBmodel) are available in the csm library as in the mobi library. The parameters, Nspeed and Pspeed, are still used to check MOS device corners.

Some information on the models:

MOS: CSM has provided HSPICE level 28 models for NMOS and PMOS transistors with minimum dimensions of W/L = 1.2/0.6 um. Level 28, a Meta Software modification of BSIM1, should be adequate for both digital and analog device modeling. MOS models are separated into 16 different device ranges, with boundaries at W = 1.2, 7.5, and 15 um and L = 0.6, 0.75, and 7.5 um. Expect some discontinuities at these boundary device sizes.
* default channel length is 0.6um
* default drain/source junction perimeters are:
ps='(w+1.6u)*(2-shrs)'
* default drain/source junction areas are:
as='(w*1.6u)*(1-0.5*shrs)'
* shrd/shrs parameters are still available provided default junction perimeters and areas are used.

Diodes: The library contains three diode models - DW2SUBmodel (NWell/Sub), dwell (P+/NWell), and dsub (N+/Sub).
* default junction width for dwell and dsub is 1.6um.

Resistors: The following layer resistance models are included:
* ndif - N+ diffusion
* pdif - P+ diffusion
* npoly - silicided N+ poly (2nd poly)
* ppoly - silicided P+ poly (2nd poly)
* p1f - first layer routing poly
* nw - N-Well
* metal1 - first layer metal
* metal2 - second layer metal

Capacitors: No model for the linear capacitor was provided. Models for the following parasitic capacitors are included in the library:
* cm1act - M1 on active
* cm1p1 - M1 to poly1
* cm1f - M1 on field
* cm2m1 - M2 to M1
* cm2f - M2 on field
* cp1f - poly1 on field

Wires: Wire models for M1 (wiremetal1), M2 (wiremetal2), and poly1 (wirep1f) are in the library.
* default wire dimensions for metal layers is w=0.8um, l=10um
* default wire dimensions for poly layer is w=0.6um, l=10um

Changes will be made to existing models as more information is provided by CSM. As always, comments/suggestions are welcome.

Chris

From: Tom Vo [vo@merope]
Sent: Tuesday, November 01, 1994 6:53 PM
To: 'Tim B. Robinson'; 'Lisa Robinson'; 'Geert Rosseel'; 'Dave Van't Hof'; 'Mark Hofmann'; 'John Campbell'; 'B. P. Wong'
Subject: power pads on euterpe

There may be a real problem with the current power pad assignment on euterpe . Can we talk about it in the 9:30 Wed meeting ?

tvo

From: Geert Rosseel [geert@ambiorix]

Sent: Tuesday, November 01, 1994 7:51 PM

To: 'bpw@merope'; 'geert@merope'; 'hopper@merope'; 'lisar@merope'; 'solo@merope'; 'tbr@merope'; 'vanthof@merope'; 'vo@merope'

Subject: Re: power pads on euterpe

Tomorrow morning is the Creole REview. Let's meet in the afternoon, this is urgent.

Meeting : Wednesday 3:00 p.m.
Hardware conference room

Topic : power pad assignment : do we have a problem powering up the TTL I/O's (in normal operation)

Geert

From: Fred Obermeier [fwo@pelagon]
Sent: Tuesday, November 01, 1994 8:13 PM
To: 'geert@pelagon'
Cc: 'bpw@pelagon'; 'fwo@pelagon'; 'stick@pelagon'
Subject: vref_942ph and vref_943ph

Geert,

As per the Csyn meeting, we've decided to remove the rule:

```
      vref*_*942p*h*  vref_ab943phvwy         reference
```

However, I cannot remove this rule from the csyn.signames file until bpw/stick's cells are fixed. Euterpe has both vref_942ph and vref_943ph.

Thanks,
Fred.

From: Bruce Bateman [stick@kephalos]
Sent: Tuesday, November 01, 1994 8:18 PM
To: 'geert@pelagon'; 'fwo@pelagon'
Cc: 'bpw@pelagon'; 'stick@pelagon'
Subject: Re: vref_942ph and vref_943ph

> Date: Tue, 1 Nov 1994 17:12:41 -0800
> From: fwo@pelagon (Fred Obermeier)
> To: geert@pelagon
> Subject: vref_942ph and vref_943ph
> Cc: bpw@pelagon, fwo@pelagon, stick@pelagon
>
> Geert,
>
> As per the Csyn meeting, we've decided to remove the rule:
> vref*_*942p*h* vref_ab943phvwy reference
> However, I cannot remove this rule from the csyn.signames file until
> bpw/stick's cells are fixed. Euterpe has both vref_942ph and
> vref_943ph.
>
> Thanks,
> Fred.
>
>

What do you mean by fixed? (change vref_942ph to vref_943ph?)

What cells need to be fixed? (all cache?)

Who is going to do this? (bp and myself?)

BB

From: Fred Obermeier [fwo@pelagon]
Sent: Tuesday, November 01, 1994 8:23 PM
To: 'fwo@pelagon'; 'geert@pelagon'
Cc: 'bpw@pelagon'; 'stick@pelagon'
Subject: Re: vref_942ph and vref_943ph

Hi all,

Looks like my grep was wrong. There is no 'vref*943p' signal in tbr_euterpe-pass1.splvs.

Sorry,
Nevermind,
Fred.

From: Tim B. Robinson [tbr@aphrodite]
Sent: Wednesday, November 02, 1994 12:53 AM
To: 'euterpe@aphrodite'
Subject: FINAL DECISION: 4bit add/mpy/set

tbr wrote (on Mon Oct 31):

> The 4 bit group arithmetic operations (gadd.4, gsub.4, gmul.4,
> gumul.4, gmuladd.4, gumuladd.4) will not be supported.
> These operations are being eliminated in order to reduce the atom count
> of the data path, hopefully to the point where we can make it fit.

This posting omitted to say that we are also not supporting the 4 bit group set instructions gsetl.4, gsetge.4, gsete.4, gsetne.4, gsetul.4, and gsetuge.4.

Tim

From: Tim B. Robinson [tbr@aphrodite]
Sent: Wednesday, November 02, 1994 1:04 AM
To: 'Jeff Marr'
Cc: 'euterpe@gaea'

Jeff Marr wrote (on Tue Nov 1):

> In article <199411010450.UAA09495@aphrodite.microunity.com>,
> tbr@aphrodite.microunity.com (Tim B. Robinson) writes:
> |>
> |> The 4 bit group arithmetic operations (gadd.4, gsub.4, gmul.4,
> |> gumul.4, gmuladd.4, gumuladd.4) will not be supported.
> |> These operations are bein eliminated in order to reduce the atom count
> |> of the data path, hopefully to the point where we can make it fit.
> |>
> |>
> What about the other 4 bit group ops - are they supported?

I just sent a correction of the posting. The gset.4 class are not supported. However, all the XLU releated ops are there in 4, 2, and 1 bit sizes. It is just the arithmetic related operations that we have pruned.

Tim

From: tbr
Sent: Wednesday, November 02, 1994 1:06 AM
To: 'Tom Laidig'
Subject: Re: mnemo and pandora
Follow Up Flag: Follow up
Flag Status: Red

Tom Laidig wrote (on Tue Nov 1):

> Tim B. Robinson writes:
> |
> |Tom Laidig wrote (on Sat Oct 22):
> |
> | Tim B. Robinson writes:
> | |
> | |Do you know if mail to these aliases ends up in a news group (like for
> | |euterpe)? (I'm not a news reader, so I'm not sure how to check). I
> | |had asked for it to be set up that way, but a glance at the
> | |etc/aliases file leads me to suspect it may not be the case. If not,
> | |can you get it fixed please?
> |
> | For mnemo checkins, I decided to reuse the muse.checkins.mnemosyne news
> | group.
> |
> | The pandora checkins are going into muse.checkins.misc (as are a lot of
> | other things -- we haven't created any new groups for quite a while).
> |
> |Actually, I wasn't referring to the checkins. If I under stand it
> |correctly, `mail euterpe' results in something permanently logged in
> |muse.euterpe or some such. That's what I'd like to be happening for
> |the mnemo and pandora aliases. I'd asked ken to set it up that way,
> |but I wasn't sure if it had happened.
>
> Sorry, just ran across this message lying under a rock, metaphorically
> speaking. It looks as if mail to `pandora' goes to the news group
> muse.pandora. However, mail to `mnemo' doesn't appear to be saved
> anywhere.

No problem, we have not lost much. Can you fix the mnemo case please?

Tim

From: Tim B. Robinson [tbr@aphrodite]
Sent: Wednesday, November 02, 1994 1:12 AM
To: 'Mark Semmelmeyer'
Cc: 'euterpe@ghidra'; 'bobm@aphrodite'; 'Jeff Marr'
Subject: 4 bit group ops

Mark Semmelmeyer wrote (on Tue Nov 1):

> jeffm wrote:
>
> > In article <199411010450.UAA09495@aphrodite.microunity.com>,
> tbr@aphrodite.microunity.com (Tim B. Robinson) writes:
> > |>
> > |> The 4 bit group arithmetic operations (gadd.4, gsub.4, gmul.4,
> > |> gumul.4, gmuladd.4, gumuladd.4) will not be supported.
> > |> These operations are bein eliminated in order to reduce the atom count
> > |> of the data path, hopefully to the point where we can make it fit.
> > |>
> > What about the other 4 bit group ops - are they supported?
>
> Except for GSet, they are all XLU ops and ARE supported as tbr
> mentioned somewhere else in the mail. However, dickson
> told me that the GSet.4's are gone, and I made them illegal.
> Also note that EGFMul64 is not supported and illegal.
>
> I just discovered that I failed to make the GMulAdd cases
> illegal, but they would not give correct answeres if you try them.
> I will fix that soon.

I believe the micro-arch doc is now fully up to date on these cases.

Tim

From: Tim B. Robinson [tbr@aphrodite]
Sent: Wednesday, November 02, 1994 1:15 AM
To: 'Jeff Marr'
Cc: 'euterpe@ares'; 'bobm@aphrodite'
Subject: meltdown inhibit and power on default bypass

Jeff Marr wrote (on Tue Nov 1):

> Are the meltdown inhibit and power on default bypass signals into euterpe going to be available on pins in the packaged chip, or will they just be used for wafer test?

They will be on the package.

> Where should their function be documented?

We should add something to the micro-arch doc.

Tim

From:	tbr
Sent:	Wednesday, November 02, 1994 1:18 AM
To:	'Jay Tomlinson'
Cc:	'bobm'
Subject:	euterpe/verilog/bsrc/hc hc.V hc.h hc_cmp6.V hc_driver.V hc_error.Veqn hc_sdecode.Veqn hc_tagmatch.V
Follow Up Flag:	Follow up
Flag Status:	Red

Jay Tomlinson wrote (on Tue Nov 1):

Update of /p/cvsroot/euterpe/verilog/bsrc/hc
In directory mercury:/N/auspex/root/s20/woody/chip/euterpe/verilog/bsrc/hc

Modified Files:
hc.V hc.h hc_cmp6.V hc_driver.V hc_error.Veqn hc_sdecode.Veqn
hc_tagmatch.V
Log Message:
Interleave channels now supported as spaces 18,20,22 (craig islikely to change these numbers). This has been tested in the standalone environment. I also ran a test at the toplevel to verify that regular operations still work.

Please get with bob to get this documented.

Tim

From: vant [vanthof@hestia]
Sent: Wednesday, November 02, 1994 1:29 AM
To: 'Tom Vo'; 'Geert Rosseel'
Cc: 'Dave Van't Hof'; 'Mark Hofmann'
Subject: euterpe baseplate?

Howdy,
I was just wondering how the baseplate fixes were coming along. I'd like to start up another LVS/DRC run.

Thanks,
Dave
--
Dave Van't Hof vanthof@microunity.com MicroUnity Systems Engineering, Inc.
"What rolls down stairs, alone or in pairs, rolls over the neighbor's dog?

What's great for a snack and fits on your back? It's log, log, log!"
LOG from BLAMMO! (tm) All kids love Log! #incluce <std_disclaim.h>

From: Tom Vo [vo@merope]
Sent: Wednesday, November 02, 1994 1:36 AM
To: 'vant'
Cc: 'vo@hestia'; 'geert@hestia'; 'vanthof@hestia'; 'hopper@hestia'
Subject: Re: euterpe baseplate?

vant wrote ....
>
>
>Howdy,
> I was just wondering how the baseplate fixes were coming along. I'd
like
>to start up another LVS/DRC run.
>
>Thanks,
>Dave
>--
>Dave Van't Hof vanthof@microunity.com MicroUnity Systems Engineering,
Inc.
>"What rolls down stairs, alone or in pairs, rolls over the neighbor's
dog?
>What's great for a snack and fits on your back? It's log, log, log!"
>LOG from BLAMMO! (tm) All kids love Log! #incluce
<std_disclaim.h>
>

We may need another round of edit to address the ttl buffer ground bounce problem . We're on hold with the baseplate until that gets resolved .

tvo

From: vant [vanthof@hestia]
Sent: Wednesday, November 02, 1994 1:47 AM
To: 'Tom Vo'
Cc: 'Geert Rosseel'; 'Mark Hofmann'; 'Dave Van't Hof'
Subject: Re: euterpe baseplate?

Tom Vo writes:
>
>vant wrote ....
>>
>>
>>Howdy,
>> I was just wondering how the baseplate fixes were coming along. I'd
like
>>to start up another LVS/DRC run.
>>
>>Thanks,
>>Dave
>>--
>
>We may need another round of edit to address the ttl buffer ground
>bounce problem . We're on hold with the baseplate until that gets
>resolved .
>
>tvo
>

Okay. Thanks for the update.

Dave

--
Dave Van't Hof vanthof@microunity.com MicroUnity Systems Engineering,
Inc.
"What rolls down stairs, alone or in pairs, rolls over the neighbor's dog?

What's great for a snack and fits on your back? It's log, log, log!"
LOG from BLAMMO! (tm) All kids love Log! #incluce
<std_disclaim.h>

From: tbr
Sent: Wednesday, November 02, 1994 1:50 AM
To: 'Geert Rosseel'
Cc: 'lisar@ambiorix'
Subject: elib in snapshot
Follow Up Flag: Follow up
Flag Status: Red

Geert Rosseel wrote (on Tue Nov 1):

> Why is there no delib in the snapshot proteus ? My toplevel make wants the delib/elib.config file and cannot find it.

Where are you looking?

```
tbr@gamorra /n/auspex/s41/euterpe-snapshot/euterpe/proteus/verilog/delib 409 % ls -ls
total 28
  1 -rw-rw-r--  1 chip      140 Sep  6 16:31 ea1plqh3s4x2a.v
  1 -rw-rw-r--  1 chip      207 Sep  6 16:31 ea1porl4nf8s3x3a.v
  1 -rw-rw-r--  1 chip      225 Sep  6 16:31 ea1porl5nf8s3x4a.v
  1 -rw-rw-r--  1 chip      243 Sep  6 16:31 ea1porl6nf8s3x4a.v
  1 -rw-rw-r--  1 chip      261 Sep  6 16:31 ea1porl7nf8s3x4a.v
  1 -rw-rw-r--  1 chip      172 Sep  6 16:31 eaff11x2a.v
  1 -rw-rw-r--  1 chip      171 Sep  6 16:31 eaffbbdh12s11x2a.v
  1 -rw-rw-r--  1 chip      170 Sep  6 16:31 eaffbdh16s11x2a.v
  1 -rw-rw-r--  1 chip      181 Sep  6 16:31 eaffdh16s11x2a.v
  1 -rw-rw-r--  1 chip      161 Sep  6 16:31 ealdf12s3x4a.v
  1 -rw-rw-r--  1 chip      161 Sep  6 16:31 ealdf24s6x4a.v
  1 -rw-rw-r--  1 chip      141 Sep  6 16:31 ealnf20s6x3a.v
  1 -rw-rw-r--  1 chip      142 Sep  6 16:31 ealnf36s12x3a.v
  1 -rw-rw-r--  1 chip      141 Sep 19 15:13 ealnf36s9x4a.v
  1 -rw-rw-r--  1 chip      268 Sep  6 16:31 eam2ff11x2a.v
  1 -rw-rw-r--  1 chip      277 Sep  6 16:31 eam2ffdh16s11x2a.v
  1 -rw-rw-r--  1 chip      282 Sep  6 16:31 eamema1r1w6x1a.v
  1 -rw-rw-r--  1 chip      283 Sep  6 16:31 eamema1r1wi6x1a.v
  1 -rw-rw-r--  1 chip      284 Sep  6 16:31 eamema1r1wip6x1a.v
  1 -rw-rw-r--  1 chip      285 Sep  6 16:31 eamema1r1wipr6x1a.v
  1 -rw-rw-r--  1 chip      284 Sep  6 16:31 eamema1r1wir6x1a.v
  1 -rw-rw-r--  1 chip      283 Sep  6 16:31 eamema1r1wp6x1a.v
  1 -rw-rw-r--  1 chip      284 Sep  6 16:31 eamema1r1wpr6x1a.v
  1 -rw-rw-r--  1 chip      283 Sep  6 16:31 eamema1r1wr6x1a.v
  1 -rw-rw-r--  1 chip       90 Sep  6 16:31 eawwlvref16s2x4a.v
  1 -rw-rw-r--  1 chip       91 Sep  6 16:31 eawwlvref20s10x1a.v
  1 -rw-rw-r--  1 chip       90 Sep  6 16:31 eawwlvref56s7x4a.v
  1 -rw-rw-r--  1 chip      490 Sep 19 15:13 elib.config
tbr@gamorra /n/auspex/s41/euterpe-snapshot/euterpe/proteus/verilog/delib 410 % pwd
/n/auspex/s23/euterpe-proteus-cp/verilog/delib
```

From: Tim B. Robinson [tbr@aphrodite]
Sent: Wednesday, November 02, 1994 1:50 AM
To: 'Geert Rosseel'
Cc: 'lisar@ambiorix'
Subject: elib in snapshot

Geert Rosseel wrote (on Tue Nov 1):

Why is there no delib in the snapshot proteus ? My toplevel make wants the delib/elib.config
file and cannot find it.

Where are you looking?

```
tbr@gamorra /n/auspex/s41/euterpe-snapshot/euterpe/proteus/verilog/delib
409 % ls -ls
total 28
   1 -rw-rw-r--  1 chip          140 Sep  6 16:31 ealplqh3s4x2a.v
   1 -rw-rw-r--  1 chip          207 Sep  6 16:31 ealporl4nf8s3x3a.v
   1 -rw-rw-r--  1 chip          225 Sep  6 16:31 ealporl5nf8s3x4a.v
   1 -rw-rw-r--  1 chip          243 Sep  6 16:31 ealporl6nf8s3x4a.v
   1 -rw-rw-r--  1 chip          261 Sep  6 16:31 ealporl7nf8s3x4a.v
   1 -rw-rw-r--  1 chip          172 Sep  6 16:31 eaff11x2a.v
   1 -rw-rw-r--  1 chip          171 Sep  6 16:31 eaffbbdhl2s11x2a.v
   1 -rw-rw-r--  1 chip          170 Sep  6 16:31 eaffbdhl6s11x2a.v
   1 -rw-rw-r--  1 chip          181 Sep  6 16:31 eaffdhl6s11x2a.v
   1 -rw-rw-r--  1 chip          161 Sep  6 16:31 ealdf12s3x4a.v
   1 -rw-rw-r--  1 chip          161 Sep  6 16:31 ealdf24s6x4a.v
   1 -rw-rw-r--  1 chip          141 Sep  6 16:31 ealnf20s6x3a.v
   1 -rw-rw-r--  1 chip          142 Sep  6 16:31 ealnf36s12x3a.v
   1 -rw-rw-r--  1 chip          141 Sep 19 15:13 ealnf36s9x4a.v
   1 -rw-rw-r--  1 chip          268 Sep  6 16:31 eam2ff11x2a.v
   1 -rw-rw-r--  1 chip          277 Sep  6 16:31 eam2ffdhl6s11x2a.v
   1 -rw-rw-r--  1 chip          282 Sep  6 16:31 eamema1r1w6x1a.v
   1 -rw-rw-r--  1 chip          283 Sep  6 16:31 eamema1r1wi6x1a.v
   1 -rw-rw-r--  1 chip          284 Sep  6 16:31 eamema1r1wip6x1a.v
   1 -rw-rw-r--  1 chip          285 Sep  6 16:31 eamema1r1wipr6x1a.v
   1 -rw-rw-r--  1 chip          284 Sep  6 16:31 eamema1r1wir6x1a.v
   1 -rw-rw-r--  1 chip          283 Sep  6 16:31 eamema1r1wp6x1a.v
   1 -rw-rw-r--  1 chip          284 Sep  6 16:31 eamema1r1wpr6x1a.v
   1 -rw-rw-r--  1 chip          283 Sep  6 16:31 eamema1r1wr6x1a.v
   1 -rw-rw-r--  1 chip           90 Sep  6 16:31 eawwlvref16s2x4a.v
   1 -rw-rw-r--  1 chip           91 Sep  6 16:31 eawwlvref20s10x1a.v
   1 -rw-rw-r--  1 chip           90 Sep  6 16:31 eawwlvref56s7x4a.v
   1 -rw-rw-r--  1 chip          490 Sep 19 15:13 elib.config
tbr@gamorra /n/auspex/s41/euterpe-snapshot/euterpe/proteus/verilog/delib
410 % pwd
/n/auspex/s23/euterpe-proteus-cp/verilog/delib
```

From: Geert Rosseel [geert@ambiorix]
Sent: Wednesday, November 02, 1994 2:20 AM
To: 'tbr@ambiorix'
Subject: elib : found the problem .. me not crazy. just confused.

Hi Tim,

I was looking in :

/n/auspex/s41/euterpe-proteus/proteus

Apparently that is different from :

/n/auspex/s41/euterpe-snapshot/euterpe/proteus

I though that Lisa had said that these two were linked together and were the same thing

When I do an ls in /n/auspex/s41/euterpe-proteus/proteus/verilog

I get :

BOM	Makefile	dclib	eclib	mlib	xlib	zclib
BOM.BAK	cerbmaster	diff.h	exlib	src	zblib	zeblib
CVS	clib	dxlib	libsrc	wrappers	zblibsrc	zxlib

NO elib or delib ...

Geert

From: Simon Crosby [Simon.Crosby@cl.cam.ac.uk]
Sent: Wednesday, November 02, 1994 4:41 AM
To: 'Pearl Tsai'
Cc: 'a2x-users@x.org'
Subject: Re: talking (the a2x faq)

This is a good opportunity for me to post the a2x and DragonDictate faq which I keep. You will find lots of information on hoarseness with DragonDictate.

If sending long messages like this annoys people on the list then please let me know. I do not intend to post the faq more than once per month unless there is a lot of interest.

Simon

The (unofficial) a2x faq is available as:

http://www.cl.cam.ac.uk/users/sac/a2x-faq.html

A preliminary version of the DragonDictate faq is also there:

http://www.cl.cam.ac.uk/users/sac/dd-faq.html

These are both maintained entirely by voice, so please forgive the poor format at present. Pearls of wisdom, hints, tips, dcoms and macros are all very welcome.

Simon

[Simon.Crosby@cl.cam.ac.uk]
[http://www.cl.cam.ac.uk/users/sac/]

The a2x FAQ

Currently maintained by Simon Crosby entirely by voice, using DragonDictate and a2x.

This FAQ contains distilled pearls of wisdom about a2x, a piece of public domain software designed to interface the DragonDictate speech recognition system on a PC to a workstation running the X Window System.

A related FAQ, the DragonDictate FAQ contains information about DragonDictate and speech recognition systems for all types of computers, much of which is relevant to a2x, but not specific to it.

These FAQs are direct copies (shortened where possible) of postings to the a2x mailing list, the SOREHAND mailing list, and the C+HEALTH mailing list. Send contributions/corrections/updates/ideas to me.

Contents

Just click on the topic you want to get to...

The a2x Mailing List
Where to get a2x
a2x Basics
a2x In Operation

How do I build a2x ?
What Use are DD's States ?
How useful is DD / a2x for Programming ?
Troubleshooting with DD / a2x
Window Manager Hints
Contributed Voice Macro Sets
Useful DCOMS / Macros
Useful Shell Scripts
PC Telnet Software
The a2x Olympics

The a2x Mailing List

A mailing list of a2x users exists, to keep people abreast of any new developments. The mailing list is a2x-users@expo.lcs.mit.edu; send requests to join to a2x-users-request@expo.lcs.mit.edu.

Return To Contents List

Where to get a2x

The current version is on ftp.x.org as /contrib/a2x.tar.Z, or on the web here is the reference .

Return To Contents List

a2x Basics

(Mostly from the a2x man page)

a2x is designed to interface DragonDictate to the X Window System. a2x converts the ASCII output of DragonDictate into X device events. a2x is capable of manipulating both the keyboard and the pointer; depending on the applications, it is possible to use X hands-free through a2x.

a2x requires an X protocol extension to function. The XTEST, DEC-XTRAP, and XTestExtension1 extensions can be used. The XTEST extension was developed by the X Consortium for use in the X Test Suite, and an R5 patch to support the XTEST extension is available via anonymous ftp to export.lcs.mit.edu, as the file /pub/XTEST/R5fix-xtest-1. The DEC-XTRAP extension was developed by Digital Equipment Corp., and public versions are available for both R4 and R5. The XTEST extension has been incorporated as standard into the R6 server. The XTestExtension1 extension was originally developed for an old test suite done by an informal group known as the X Testing Consortium; the client-side library and some device-independent code exists in both the R4 and R5 core distributions, but only a couple sample servers (HP and X386) in the MIT distribution supports the extension (some product servers might though).

Note

From: Adrian Nye

> >the file /pub/XTEST/R5fix-xtest-1. this file no longer there --
> I've been searching extensively for xtest for R5 and I can't find it
> anywhere. I've found xtest for R6 on a number of sites but no R5.
> If anyone can point me in the right direction, I'd be very thankful.
> Sorry if I'm being a bonehead...

From: steffen@iexist.att.com Date: Fri, 9 Sep 94 11:54:47 CDT

I tracked this down yesterday, it is now /pub/R5/fixes/fix-18.Z, but it is an optional patch and may not have been applied. Use xdpyinfo to get the list of extensions.

The XTEST extension is compiled into the R6 X server by default if you build X from the X Consortium distribution (at least on my Sun). You probably already have it: use xdpyinfo to check.

a2x was originally written for the XTEST extension, but both DEC-XTRAP and XTestExtension1 also work. The main difference as far as a2x is concerned is that XTEST permits time delays inside the X server, while with DEC-XTRAP and XTestExtension1 the delays are handled on the client side and hence can be somewhat less accurate, but time delays are rarely needed. In addition, XTestExtension1 does not provide a way to synthesize relative pointer motion, so the WarpPointer protocol request is used instead.

The Imakefile for a2x comes configured to use only XTEST, but you can configure it to compile in support for any or all of the extensions; a2x will automatically choose whichever extension is supported by the display. If you dynamically switch among different displays supporting different extensions, you will probably want to compile more than one extension into a2x. At the top of the Imakefile are #define's for BuildWithXTest, BuildWithXTrap, and BuildWithXTestExt1; simply set the ones you want to YES and the ones you don't want to NO. To see which extensions are supported by your X server, use xdpyinfo. Your server must have at least one of "XTEST", "DEC-XTRAP", or "XTestExtension1" in order to use a2x.

The Imakefile also comes configured by default to assume that DragonDictate version 1.01 is being used, although the actual version can be overridden on the a2x command line. If you normally use DragonDictate 1.01a or 2.0 or higher, then change the #define for OldDragonDictate to NO before building.

The documentation provided here is for using DragonDictate and a2x solely for work under X; the assumption is that you do not use DragonDictate with programs on the PC. If you use DragonDictate with programs on the PC, you may need to create dcom files for switching between PC and X use.

Return To Contents List

a2x In Operation

There are two ways to run DragonDictate: directly under DOS, and under DESQview/X. See the man page for more details.

The normal mode of operation is to use a telnet program on the PC, and telnet across to your workstation and log in. For this you need an Ethernet card or similar on the PC, and a telnet program such as provided by PC-NFS or other products. You may wish to try using rsh instead of telnet, but the performance may be substantially worse. If you do not have a network connection, it should be possible to use a terminal program and log in to the workstation over a serial line, but performance over a serial line will likely not be as good as over a network. In the telnet session, run the script DragonDictate provided with the a2x distribution. You should be able to speak this, by saying "DragonDictate", "[enter\ key]", "OK" (the "OK" being necessary to pop down the menu to permit execution to continue). This script simply clears the screen and starts up a2x. Clearing the screen is a convenience so that the focus of attention on the PC screen will be the DragonDictate menus. You can, of course, write your own script or simply run a2x directly.

a2x takes each ASCII character produced by DragonDictate and determines a key on the X keyboard that can be pressed and released to generate that character. If Shift and Control modifiers are necessary to generate the character, a2x will automatically press and release keys for those modifiers. For example, for the character 'A', a2x will typically have to press a Shift modifier key, press an 'a' key, release the 'a' key, and then release the Shift modifier key.

It is not necessary to perform all of your "typing" through a2x; you can mix a2x output with direct keyboard typing and direct pointer manipulation. But, you should normally only switch between direct input and a2x input when all keys and buttons are in the released state, to avoid confusing a2x. (One simple exception to this rule is that you can use a2x to press/release buttons and keys while directly moving the pointer with your hand.)

Return To Contents List

How do I build a2x ?

From: Tom Knotts

> I have one general question. After downloading the a2x
> software which compiler and which libraries do I need to
> compile the C-code. I am trying to run a2x over an
> X-Server. Who would know anything about interfacing the Dragon
> card to work with X. >

First, you do

```
imake -I/usr/local/lib/imake -DTOPDIR=/usr/a2x/X11R5
```

This builds a makefile with /usr/a2x/X11R5 the top directory (or wherever you choose to put it)

Then when you type "make" you get:

```
cc -o a2x a2x.o +O3 /usr/a2x/X11R5/lib/Xmu/libXmu.sl -lXtst
                        /usr/a2x/X11R5/extensions/lib/libXext.sl
                        /usr/a2x/X11R5/lib/X/libX11.sl
                        -L/usr/lib/X11R5 -L/usr/lib/X11R4
                       -lm
```

There are the libs you need. Notice /usr/lib/Xtstlib.a

From: Simon Crosby

Alternatively:

type "xmkmf" to make the Imakefile type "make" to make a2x -- easier this way !

Return To Contents List

What Use are DD's States ?

From: steffen@iexist.att.com

> From: doug_bernard@tmai.com (Doug Bernard)

> I've read a2x.ms. One of my questions is whether I can command
> DragonDictate to switch between multiple user-defined
> dictionaries. For example I'd like to set up the following
> dictionaries (invoked by the voice commands shown in quotes): 1)

> "UNIX" i.e. command line strings, including predefined aliases
> (of which I already use about 250) 2) "VI" i.e. mnemonics for vi
> commands 3) "CHAR" i.e. mnemonics for single characters, with
> u.c. and l.c. subdictionaries 4) "WORD" i.e. DD's real-life
> dictionary 5) "C-PLUS-PLUS" for C++ keywords 6) "User-App-n" for
> keywords in the user's app 7) "MOUSE" to move and click the mouse

> etc. > The main point is that for me, by having a personal,
> structured user dictionary, I organize my thought processes
> better, reduce the complexity of individual mnemonics, and have
> fast look-up times. You can do this but I don't recommend it as
> it seems to be a style carried over from a limited voice
> recognition system like SayIt or Voice Navigator that had such
> poor recognition you had to limit the active dictionary to around
> 50 words. With DragonDictate you just use naming convictions for
> voice macros, e.g. "go" to move the mouse and "move" to move the
> cursor. You will find you want to switch the above dictionaries
> every few utterances once you have control of multiple windows.
> I have over 600 voice macros and less then 3% misrecognitions or
> about 1 in 35 utterances. With a limited system like the
> Macintosh Voice Navigator I gave up as it was extremely limited
> in power, took too much time to program, and seemed to
> misunderstand or not hear at least a quarter of my utterances.

You may also find it easier to say commands as words than the aliases you have defined, e.g. I removed all my single letter aliases for UNIX commands like find and make.

From: craig@mnemosyne.MicroUnity.com (Craig Hansen)

I'm a Kurzweil VOICE user, which supports multiple user-defined dictionaries, and I, too prefer using a single, large dictionary. In fact, I added vocabulary elements to permit spelling out single characters without changing mode. The problem is that without a mechanism to keep the mode in line with your current application, having multiple modes (dictionaries) is a source of errors, resulting from having the recognizer use the wrong dictionary.

From: dana@sybase.com (Dana Bergen)

I thought I was going to want to set up a lot of state vocabularies, but found it unnecessary. I'm finding that it works fine to have almost everything in the global vocabulary, and it saves the hassle of switching and keeping track of which one you're in. I have Unix, vi, mail, and window management commands all in my global vocabulary. I created a state vocabulary for using Frame, which suits the way I work; I switch around frequently between using Unix/vi/mail commands, but when I'm using Frame I'm usually using it for a while, so saying "use frame" when I start and "exit state" when I stop is not a big burden. It also lets me use commands like "page up" and "page down" and have them do the right thing whether I'm in Frame or vi.

From: Jack

I do almost exactly the same thing except that I immediately enter a state called "Unix" and stay there. There are certain Dragon functions that tend to kick you out of the state you are in and put you back in the global state (I forget their exact terminology). I just added dcom code to the commands that do that so that the last thing they do is to reenter the "Unix" state. I use emacs as an editor, so I can use the exact same macro for both emacs and frame. Since a number of editors have adopted emacs-like metaphors, I can (and do) use them all with the same macro for various basic emacs functionality... this works extremely well for me and I rarely have to think about voice recognition, I just use it, a case where ignorance truly is bliss...

Return To Contents List

How useful is DD / a2x for Programming ?

This is a summary from a request for support by Doug Evans, who needed help to persuade his company to spring for a DD setup. Shows that it works.

From: Doug Evans

This is way cool. Thanks for the replies. I took out the author's names. I think enough replies went to the list anyway.

I am an engineer and a DragonDictate user for 18 months. I do a lot of writing using Latex and Framemaker and some software (VHDL) development using emacs. DragonDictate works extremely well for the writing. Code development is not as easy but still works. I use DragonDictate for virtually all my computer input. I am a UNIX user and use a2x. I use DragonDictate 4-5 hours per day easily, which was about my level before I got RSI. My doctor does not expect I will ever be able to use a keyboard extensively again. DragonDictate costs $1K for the classic version. That is peanuts. That is probably one day of work lost. Any management type who can't figure that out is an idiot. I could not work without DragonDictate, and I wrote some proposals this year which brought in almost $2M of revenue. The choice is easy.

I am such a programmer, I am doing WWW development in C++ and other languages. I use DragonDictate and believe it has saved my career, your managers are full of it and I am proof. So there!

I use DragonDictate in combination with the freeware package a2x to program on a fulltime basis in the unix environment under X.

I never type.

I get about 20-40 words per minute input speed using DragonDictate. the range is so large because DragonDictate's comprehension really depends on whether it has heard you say a word before. I have been using it for six months, but will still occasionally run into stretches where I am using a lot of new jargon, and then I am frequently forced to correct DragonDictate's interpretation of what I'm saying.

My time is split into equal thirds devoted to C programming, Bourne shell and lisp programming.

I think it is an acceptable solution, and quite cheap considering what you get. In my case, it may have saved me from having to change careers due to my hand problems.

I'm a Senior Software Engineer at XXX. I investigate problems, write specifications documents, write code, and fix bugs. My work is in C in a Unix environment.

I use DragonDictate all day long. I can't type at all without pain, so I do everything with DragonDictate. I think that the effect on my programming productivity is minimal; i.e. I get pretty much the same amount of work done with DragonDictate as I used to get done typing. It's a little more of an impediment when writing a document; I create documents somewhat more slowly than before. However, I'm perfectly capable of doing what's needed for my job. I was a very fast typist; DragonDictate makes me more like a fairly slow typist. There are plenty of engineers here who are not super fast typists who do a good job. My company expects the same amount of work from me that they expect from other people, and this has not been a problem.

There was a pretty significant amount of time required to get going with DragonDictate in a Unix programming environment. Getting the various pieces of software and hardware working together correctly took some doing; getting macros and such set up took some doing; getting used to using DragonDictate took some doing. I spent a fair amount of time after hours working on my environment for the first month or so. During that period of time, I was doing my job using DragonDictate but wasn't as productive as I am now with it.

I use DragonDictate for all of my programming except assembler, which is a bit of a syntactical nightmare. Programming is easiest if you

1. Have a set of macros in DragonDictate which assist you in programming and 2. Have a customized editor with intelligence about what you are trying to do. I use emacs, and have written several (admittedly crude) emacs lisp functions which handle all of the syntax of C programming.

Let me give you an example:

I say "c-for-loop" and what I get in my emacs buffer, correctly indented to preserve the logical structure of the current program is:

```
    |
   \ /
    v for(;;) {

}
```

The arrow ending in 'v' above indicates where my cursor ends up, so that I can insert the first argument of the for loop. I have similar functions for all of the C structures and sub-structures. I also have words such as int, char, struct etc. which are commonly used. I can also comment out regions of code, where a region is a logical block, such as a function or whatever, and use blocks in movement commands such as "right-conditional" which steps right over the next conditional block.

If you are editing somebody else's code and they tend to use ghastly variable names such as lkjdsflkjdfsa, this could be a problem, but here again emacs comes to the rescue. In this case I say "lima kilo dabbrev-expand" and emacs tries to expand something which begins with the letters "lk", by looking back up the file. I'm no great lisp hacker, and I've promised myself that I will sit down one day and get this thing really sorted out (more intelligent), but it works well enough that I have managed to put that day off thus far.

As I've stated before on this list, I would be happy (in the spirit of a2x and emacs, which are publicly available) to provide my DragonDictate macros and emacs lisp code to anybody who wants it. I would hope that they could be improved by somebody with a bit more time and creativity, and again made public for general benefit.

Best of luck and I hope this will help persuade your boss that you will be better off with DragonDictate.

I use DragonDictate for practically all of my programming (c, c++, shell), documentation (latex), and email. I have been using it "full-time" since January 1991. Without it I would not be able to work and would need to find another profession.

Emphasize to your employer that carpel tunnel syndrome involves serious, permanent nerve damage. A complete dragon based environment can be assembled for under $4000, perhaps under $3000. Your employer will find this to be a lot cheaper than the costs of worker's compensation and long term disability which they will incur if they push you to keep working in a way that you know will injure you.

Lastly, I would encourage the individual to purchase their own system, if they are able. I own my recognition system and am happy with the decision to buy it myself. I'm too dependant on it... it would be like someone else owning my fingers.

I do R&D [...] at XXX. I just wrote a 700 line C language program on UNIX in a few weeks, and I'm continually changing a large HyperCard application on a Macintosh. In a few months I expect to be programming on a PC in Visual Basic and ToolBook. I use DragonDictate all day with up to 3500 utterances/day with less than 3% errors. I can dictate as fast as I could type, although it took 6 months and writing 700 voice commands to become that proficient. Here is the standard blurb I post to our internal netnews:

I've been unable to type or use a pointing device for more than a few minutes since my Repetitive Strain Injuries became severe in March 1993. Permanent continuous pain and partial loss of the use of my hands was becoming likely due to permanent nerve damage if I continued typing, so I stopped. Since then I have assembled a voice-controlled computing environment on a PC, UNIX workstation, and Macintosh.

I've evaluated and assembled many pieces of software and hardware and written hundreds of voice commands to integrate them. I'm using the DragonDictate Classic speech recognition product running on a PC connected to the a2x program controlling the X Window System running on a Sun workstation. This allows me to enter and edit text and UNIX commands and control the (mouse) pointer by voice. I also control a Macintosh by displaying its screen on the Sun workstation using InterCon's Planet X software. You can use a simpler version of this system if you just use a PC, or if you use a mainframe but can login from a PC. The cost of the basic system (DragonDictate Starter at $695 plus a 486/33MHz PC with 8M memory) is about $2700. It takes a few weeks to get comfortable using it; after 6 months I could dictate as fast as I could compose text and as fast as I used to be able to type, about 15 words/minute.

My main uses of this voice-controlled computing environment have been word processing, email, C and HyperCard programming, and gathering information from our library, Usenet, and CD-ROM and Internet databases. I can do everything by voice that I used to do with a mouse and keyboard.

Due to a chronic RSI, I have been using DragonDictate for over 3 years to do software development in C/C++ on the following platforms: DECwindows/Motif on VMS, Motif on Unix (a little), and DOS/MS Windows. I feel that DragonDictate allows me to be approximately as productive as I was when I was typing. By this I mean that although some tasks take a little longer, other tests are actually easier using DragonDictate, and in the long run it more or less evens out.

I am extremely satisfied with DragonDictate. Without this product, I doubt whether I would be able to continue in my career as a software engineer.

Return To Contents List

Troubleshooting with DD / a2x

People frequently have problems with the undo facility of a2x. Here is a sample of postings.

From: Bob Scheifler

> how do you represent a
> key such as Escape or Tab as a key in the ?

You can actually put control characters directly in the file, but it's probably easier to use ^ followed by a character. The usual convention is followed of using the character you get by adding 0x100 to the control character. E.g.,

^@ NUL ^I TAB ^J LF ^M CR ^[ESC

And one special case:

^? Delete

Date: Thu, 30 Dec 93 17:59:58 CST From: steffen@iexist.att.com

How can I use the a2x undo facility for the [back 1] macro? I have it defined as

add-word /t "[back 1]" "{Del}" invisible

for a2x. I tried changing it to

add-word /t "[back 1]" "{Ctrl+t}{Ctrl+c}?" invisible

but it inserts '?' instead of deleting the previous character when I use it.

P.S. I'm working on a complete .a2x undo file for emacs macros and am using the DragonDictate 2.0 macro state facility to keep the a2x undoable emacs macros local and the regular emacs voice macros global because I occasionally use emacs outside a2x or in DOS.

Date: Fri, 31 Dec 1993 12:16:14 EST From: Bob Scheifler

> I tried changing it to
> add-word /t "[back 1]" "{Ctrl+t}{Ctrl+c}?" invisible
> but it inserts '?' instead of deleting the previous character when I use it.

Right, because {Ctrl+t}{Ctrl+c} means "turn on the X Control modifier", it doesn't mean "make an ASCII control character". So, if you have a key on your X keyboard with '/' in the unshifted position and '?' in the shifted position, what a2x generates is an event for that key that has the X Shift and Control modifiers turned on.

The reason you can't just use {Del} for your purpose is that DragonDictate won't generate a backspace for it, so a2x won't see it to undo it. So what you need to do is specify, by keysym, the key you want to press. Assuming that key is labeled Delete, you can use

{Ctrl+t}Delete{Ctrl+t}

That's a bit long, so you can also do it by hexadecimal keysym value:

{Ctrl+t}ffff{Ctrl+t}

That's still a bit long, but I can't think of a shorter way to do it without adding something to a2x.

To make sure the key is labeled Delete on your keyboard, use xev to see what key is pressed when you send {Del} through a2x.

Now, to undo that (using the emacs undo command), you can put

^TDelete^T:^_ ^Tffff^T:^_

in your .a2x file.

Subject: help with undo? From: D!

in response to my previous questions, a number of people explained .a2x files to me as a way to do undos. However I can't get them to work at all! Can someone help me? Here is an example:

I have macro [click 1] assigned to
{Ctrl+t}{Ctrl+b}1{Ctrl+t}{Ctrl+t}{Ctrl+b}1{Ctrl+t}

in my .a2x file I have the following line: ^T^B1^T^T^B1^T:

I thought that would make the "undo" for [click 1] a no-op. But when I say "scratch that" after a [click 1], I get 6 backspaces instead.

What am I doing wrong?

I am using DragonDictate V3.0.Maybe my version of a2x doesn't were with DragonDictate V3.0? I think I have a2x version 1.12.

From: steffen@iexist.att.com Subject: Re: help with undo?

As you discovered, telnet usually swaps backspace and delete by default. For PC-NFS use the -y option, for other software check the manual.

Also you need the latest a2x that was updated at the end of last year. The first line of a2x.c should be

/* $XConsortium: a2x.c,v 1.129 93/12/29 20:15:28 rws Exp $ */

From: dana@sybase.com (Dana Bergen) Subject: Re: DESQview/X 2

>Has anyone had success using any version of DragonDictate with the newest >version of DESQview/X? Hints would be appreciated. Thanks.

I'm using DragonDictate 3.0 with DESQview/X version 2. This is the only configuration I've used, so I can't tell you what is different from previous versions. I'm using the PC network software that comes with DESQview/X 2. I haven't had any of the hanging/crashing type problems that people have apparently had with some combinations. I have encountered the following two problems with the interaction of the two packages:

-- I had to get rid of the dragon logo that is displayed at startup of DragonDictate 3.0 because it hung my remote DESQview/X window. (Delete the file dd.bit.)

-- Old menus hang around on the DESQview/X window on my workstation. This is really annoying because sometimes it's not obvious whether what's up there is "real" or not. I've corresponded with both Dragon and Quarterdeck but no one seems to have solved this.

From: doug_bernard@tmai.com (Doug Bernard) Subject: Re: demise of DD

hotkey in telnet session

This is a dcom entry that preserves the DragonDictate hotkey in the telnet session (thanks to Jack for the tip on the kbh (keyboard handler) command):

```
; "[start UNIX]": ; .. telnet to cougar; pause; login as dougb; pause
; .. start a2x ; .. remove DD choice list via dkey {Enter} ;
.. call-to-state a2x (do last because takes some time to switch)
add-word /t /g "[start UNIX]" "telnet cougar{Enter}{Dcom}pause
4000{Dcom}{Alt+c}kbh off{Enter}user{Enter}{Dcom}pause
200{Dcom}password{Enter}{Dcom}pause
6000{Dcom}DragonDictate{Enter}{Dcom}dkey
{Enter}{Dcom}{Dcom}call-to-state \"a2x\"{Dcom}" i
```

I also use the following to quit:

```
; "[quit UNIX]": this will work whether or not a2x is running: ;
.. exit a2x via ^t^e; hit enter key (in case a2x not running); pause
for a2x to exit ; .. logout of remote host; pause; exit telnet; pause
; .. remove DD choice list via dkey {Enter} ; .. return to state
preceeding a2x (do last because takes some time to switch) add-word /t
"[quit UNIX]" "{Ctrl+t}{Ctrl+e}{Enter}{Dcom}pause
1000{Dcom}logout{Enter}{Dcom}pause 3000{Dcom}{Alt+x}{Dcom}dkey
{Enter}{Dcom}{Dcom}return{Dcom}" invisible
```

Here is another problem -- the automatic capitalization of words by DragonDictate at the end of a sentence can cause problems with the control sequences embedded in your DragonDictate/a2x macros:

From: steffen@iexist.att.com Subject: Re: problem with ^T vs ^t

> From: carroll@zko.dec.com
> my a2x session keeps getting screwed up, and I finally figured out why. Apparently, a2x does not consider CTRL+T the same as CTRL+t! therefore, when I do something which causes the next character to be capitalized (such as "period", [capitalize word], [begin uppercase], [shift-key], etc), and then say a macro of the form CTRL+tCTRL+t, (such as [click 1]), it gets screwed up because it doesn't pick up the first ^T.
>
> The only fix I have found for this is to change my macros to things like "{dcom}lowercase-word{dcom}{Ctrl+t}{normal-case}Delete{Ctrl+t}. (The {normal-case} is necessary because "Delete" *must* be capitalized for the XServer to recognize it.)

Get rid of the sentence-ending punctuation capitalization -- it is an endless source of errors. Here are DragonDictate 3.0 commands to do it and define begin sentence and paragraph beginning macros, so you get capitalization only when you want it:

```
; don't capitalize after sentence-ending punctuation characters ;
note: these lines cause an error in DragonDictate 2.0 punctuate
". \"period\"" left punctuate "? \"question mark\"" left punctuate "!
\"exclamation point\"" left

; use these macros instead add-word /g /t "[begin paragraph]" "" c l r
add-word /g /t "[begin sentence]" " " c l r
```

From: dana@sybase.com (Dana Bergen) Subject: Re: problem with ^T vs ^t

```
>; don't capitalize after sentence-ending punctuation characters >;
note: these lines cause an error in DragonDictate 2.0 >punctuate
```

". \"period\"" left >punctuate "? \"question mark\"" left >punctuate
"! \"exclamation point\"" left

I like having these available, so I have a second set of macros that don't punctuate -- "dot", "hook mark", and "bang" (actually "dot" is already built in) -- which I use when I'm not about to dictate another sentence. Between these and having added the lowercase-word dcom to my escape key macro (for using with vi), I've generally eliminated the problem. I think which approach is best depends on what kinds of things you do.

Return To Contents List

Window Manager Hints

From: steffen@iexist.att.com Subject: .twmrc for [doit] and others

It took me considerable effort to duplicate the .twmrc lines for a2x window management voice macros:

```
"F3" = c|m|s : w|t|i|f : f.delete Button1 = c|m|s : w|t|i|f|r : f.menu
"defops" Button1 = m : w|t|i|f : f.raise Button2 = m : w|t|i|f :
f.lower Button2 = c|m : w|t|i|f : f.iconify Button3 = m : w|t|i|f :
f.move
```

but I'm unsure what Execute and KP_F1 to 3 are supposed to do and how to define them. It would be good to put all these in an add2.twmrc file in the a2x distribution.

From: Bob Scheifler

> It took me considerable effort to duplicate the .twmrc lines for a2x
> window management voice macros:

They were really only intended as examples of writing macros, not as something that I expected everyone to use.

> but I'm unsure what Execute and KP_F1 to 3 are supposed to do and how to
> define them.

In my personal environment, I have customized various programs so that saying "[doit]" does something similar in most windows. At the time I wrote the documentation, I had "[doit]" press the key labeled Execute. Since then I've changed it to press the function key labeled F8. In my X resources, I have for example:

```
Xmh*tocMenu.Accelerators: #override\n\
        ...
        !:F8: XmhCommitChanges()\n\
        ...
```

so that "[doit]" in the main xmh window commits my folder changes. In my .emacs I have

```
(global-set-key "\e[19~" 'save-buffer)
```

so that "[doit]" in emacs saves my buffer. (ESC[19~ is what emacs generates when I type the F8 key.) Similarly, in my .rk.keys file I have

```
accept_to_end_of_line "^[[19~" # F8
```

so that "[doit]" at a shell running the Reactive Keyboard will accept the prediction and execute the command line.

That should give you the flavor, choosing one function key for a given voice macro and then customizing multiple programs to react to that key in a similar manner.

As for the KP_F* keys, my .twmrc has something like:

```
"KP_F1" = : all : f.warpto "Emacs" "KP_F2" = : all : f.warpto "Xmh"
"KP_F3" = : all : f.warpto "XTerm"
```

From: dana@sybase.com (Dana Bergen)

Here is a way to get those coordinates for pointer jumps. I use olwm and I have the following in my .Xdefaults:

```
olwm.ShowMoveGeometry: True
```

This means that when you grab a window or icon and move it, the coordinates are displayed. If I want to know the coordinates of a location I drag an icon over to it. If you want the location relative to a window, just subtract from the corner coordinates (or move the window to 0,0 before you start).

Return To Contents List

Contributed Voice Macro Sets

Several people have contributed their voice macro sets for general consumption. Here are my (Simon Crosby) DragonDictate macros, emacs lisp code for programming, and my vtwm key bindings . Please note that I'm no great lisp hacker and if you have any improvements, I'd be most grateful.

Dana Bergen's voice macros are here. Dana had this to say about her macros: "Here are my global macros, followed by my Frame macros, with some explanatory remarks interspersed. I agree with Jack that you'll want to mostly create your own macros on the fly to suit the way you work. However, these will give you some ideas."

From: dana@sybase.com (Dana Bergen) Subject: vi tip

I experimented with using a special state for vi command mode, but decided that for the way I work it wasn't worth the trouble. The types of errors it prevents don't happen to me that often. However, I found it useful to make the following changes to the [escape key] macro:

-- Change the punctuation to "left right" instead of "invisible" -- Add the "lowercase-word" Dcom as part of [escape key], i.e., in the Edit window it should look like this:

```
{Esc}{Dcom}lowercase-word{Dcom}
```

This avoids the situation where the last thing you typed in input mode was a question mark or period, and your next command gets messed up by the spacing and capitalization.

Here are Jack's macros(jack@eit.com). Jack had this to say about his macros: "On the subject of creating macros and deciding which to create, I'd recommend simply creating what you need as you need it. The set I posted were the third or fourth set I'd developed and I

believe that each new set was smaller than the one before it. While this means that you can't sit down and enter everything you need in one session, it will create only what you do need; after the first set you can save them to ASCII and load them into a new version of Dragon or whatever. I found that looking at the first ASCII dump that there were many, many macros that I had completely forgotten about, mainly because I never used them more than a couple of times at maximum. Another point is that it takes some time to develop your "style" which will also affect what macros you create. There are also linguistic choices to make on the basis of phonetics; you want phrases that are as discernible as possible. For example, I had the hardest time using the phrase "enter key" because it sounded like so many other things. I found that using the phrase "carriage return" was much more easily discernible from other parts of my vocabulary." Here are some macro files for lisp, latex, and emacs, contributed by Wati (taylorw@marie.mit.edu (Washington Taylor)). Here are his emacs lisp macros for cursor control. Says Wati: "Files are separated by "================". There are some macros in the latex and emacs files which are specific to my own purposes -- I commented some of these out but left them there as examples. Hope this is useful. (I don't program much in lisp, so that file is fairly short -- the latex file, however, is probably almost everything you need unless you are an extremely serious user)" Return To Contents List

Useful DCOMS / Macros

From: taylorw@marie.mit.edu Subject: "enter key"

> From Jack jack@eit.com > > .... For example, I had the hardest time using the phrase "enter > key" because it sounded like so many other things. I found that using > the phrase "carriage return" was much more easily discernible from other > parts of my vocabulary. >

Since I want to hit the enter key frequently, I use the single-syllable word [ret] for the enter key. I don't have any problem with dragon confusing this with "bet", "net", "debt", "get" or anything else. And it certainly speeds things up. In general, I use shorter utterances for frequently used words, as in natural language or Huffman coding.

From: Simon Crosby

> From: Rob Hutten Subject: The dangers of voice recognition oh man.
> This just happened: Phone: Ring, ring. Me: [to DragonDictate] Go to
> sleep. Phone: Ring, ring. Me: [answering phone] Voice console?
> aargh.

Easy to overcome this. Train DD to recognise the phone and turn itself off automatically. I have a macro which produces no output, which is [phone ringing]. 1. Get someone to call your office when DD is "live". 2. DD will spit out some garbage after the first ring. 3. Pick up phone after first ring to stop it 4. Correct DD by saying "begin spell mode" and then enter the new macro such as my one above, with no key strokes.

5. Repeat until DD is trained.

6. The macro should be as follows:

add-word /g /t "[phone ringing]" "{Dcom}console{Dcom}g"

Voila !

This will turn off the mike whenever the phone rings.

From: Scott@ccgate.dragonsys.com

>I am hoping to be able to run programs which are incompatible with
>DragonDictate without too much pain. I am hoping to do this by, in
>an automated fashion, > > 1. unloading DragonDictate > 2. running the
incompatible application > 3. loading DragonDictate

>can anyone help me?

There is a program in the DICTATE3 directory called UNDD.EXE. Run
this to unload DragonDicate. If you have changed your voice files,
you will be prompted to save them.

If you do not want to be prompted to save your voice files, start up
DragonDictate with the /v command line switch, e.g.,

dd /v [other options]

This will allow DragonDictate to unload without stopping for anything.
Be careful with this switch though, you may lose new training, words
and macros if you haven't saved your voice files.

Return To Contents List

Useful Shell Scripts

From: Simon Crosby Simon.Crosby@cl.cam.ac.uk

Here's a useful bash macro which saves the "/" in dictating file names
and paths on unix:

In other words

cd foo/bar/baz "cd foo slash bar slash baz" becomes

cd foo bar baz

```
cd () {
        builtin cd $*
        shift
        for i in $*
        do
                builtin cd $i
        done # the following is useful if you frequently ls when you
get there..
        ls }
```

From: daft@debussy.crd.ge.com (Chris Daft) Mike Burrows was kind
enough to send this solution for the C-shell.

There's probably a more efficient way, but this csh alias for
cd does something similar to Simon's shell function:

```
alias cd chdir \`echo \!\* \| sed \'s, ,/,g\'\` \; pwd
```

This makes:
cd foo bar
turn into
chdir `echo foo bar | sed 's, ,/,g'` ; pwd
which then turns into
chdir foo/bar ; pwd

Mike Burrows

Return To Contents List

PC Telnet Software

Most people seem to use PC-NFS 5.0, which includes a telnet program suitable for use with DragonDictate. Nobody has reported problems using this software, which also lets you mount nfs files over the net (so for instance your voice files could live on Unix or whatever). People have experienced problems with some other telnet software:

From: etonumo@hisoy.etn.ericsson.se (Ulltveit-Moe Nils) To: a2x-users@x.org Subject: query: telnet trouble.

I am a new DragonDictate user, and have problems with getting Telnet to work properly with PCTCP.

The tn program seems to read the keyboard hardware itself, so it does not work with DragonDictate. There is also another Telnet program supplied (tnglass) which works with DragonDictate, but does not do the right terminal emulation, so for instance the arrow keys does not work.

From: sproul@sybase.com (Nelson Sproul)

PC/TCP works with DragonDictate if the latter is executed with the /k9 switch.

From: RDruker@RohmHaas.com (Mr. Ross Druker)

We have successfully compiled a2x for AIX 3.2.4 (has XTEST Extension 1), and *can* do the following operations via DragonDictate:

- o change mouse position
- o change window focus

So we know things are close to working. However, we can't "type", that is, when we speak or type keyboard input from the PC, it does *not* get echoed on the UNIX machine.

Using -e (for debug), ls yields "ls ^M" on the PC.

Can anyone help? Is there a command to turn on keyboard input, or is there another problem?

BTW, we are using FTP Software's TN program on the PC (version 2.3).

From: dp@world.std.com (Jeff DelPapa)

The problem is in TN. You will discove when you exit it, all the stuff you dictated will appear at your dos prompt. TN looks directly to the keyboard hardware, and ignores the DOS keyboard buffer. FTP software was completely unwilling to do anything when I reported it a year ago, but may have moderated. (the telnet that comes with DV/X doesn't have the problem, so I didn't push things).

From: rbd@sst.ll.mit.edu (Robert B Dunn)

> I am running DragonDictate on a PC connected on an ethernet and
> trying to get the PC output to my Sparc 2 workstation. I can
> accomplish this using the Desqview X software, but.....

I had the same problem with my version of telnet. I think some versions of telnet lock out DD. I use Kermit (IBM-PC Kermit-MS: 2.32/A 21 Jan 1989) to connect to the sun through the serial port. This works fine for me, and the DD popup windows come up on my PC screen which I have next to my sun workstation monitor (which I find satisfactory). I suggest you get kermit or find out what version of telnet other a2x users have.

When you run ac2 through your telnet you should be able to type on the PC keyboard and have the output come up on the sun. Typing {c-t}{c-e} on the PC in the telnet window should gracefully exit a2x.

Return To Contents List

The a2x Olympics

Finally, a bit of humour. Note that some of the contributed macros above will solve some of these problems, but they still remain the de facto test of skill for voice work :-)

From: dana@sybase.com (Dana Bergen)

Announcing the first-ever competitive event designed to show off the special talents developed by DragonDictate users!

Speed Category: The Multiple-Headset Shuffle

This event is for DragonDictate users who also use a telephone headset to reduce neck strain. The telephone rings, and the user must do the following:

1) say "voice console", "go to sleep"
2) remove microphone headset
3) remove music earphones
4) put on telephone headset
5) say "hello"

All five actions must be completed before the caller hangs up or voice mail picks up the call!

Physical Dexterity Category: The Coffee Ballet

In this event, the user must drink a cup of hot coffee while using DragonDictate. Points are deducted for:

-- bumping or moving the position of the microphone
-- burning one's mouth
-- dribbling coffee down one's face
-- spilling coffee on one's lap
-- spilling coffee into the microphone

Vocal Dexterity Category: Sending Private Email

The user enacts the following scenario:

You have just had a fascinating new sexual experience. You want to tell your friend, who lives in another country, all about it without paying for a lengthy long distance phone call. Describe

your experience in detail using DragonDictate, speaking loudly enough for DragonDictate to function but quietly enough that your co-worker in the next cube can't hear you.

Dramatic Talent Category: The Pantomime

A new employee drops by to talk to the DragonDictate user. He doesn't know about DragonDictate and believes the user is on the phone. The user must convey the concept "no, you're not interrupting me, just a second" before the visitor turns and walks away, without causing any erroneous keystrokes to be typed.

:-)

Return To Contents List

Simon.Crosby@cl.cam.ac.uk

The DragonDictate FAQ

Currently maintained by Simon Crosby entirely by voice, using DragonDictate and a2x.

A related FAQ, the a2x FAQ contains information about using DragonDictate with the a2x program, which allows you to connect a PC running DragonDictate to a workstation which uses the X Windows environment, and control the workstation's graphical display and applications.

These FAQs are direct copies (shortened where possible) of postings to the a2x mailing list, the SOREHAND mailing list, and the C+HEALTH mailing list. Send contributions/corrections/updates/ideas to me.

Contents

Just click on the topic you want to get to...

DragonDictate support How Easy is it to use DragonDictate ? DragonDictate Upgrades What Sound Cards Can I Use ? DragonDictate for Windows or DOS ? DragonDictate vs Kurzweil Voice DragonDictate vs IN3 What helps / hinders recognition ? How About DragonDictate for the Mac? How About DragonDictate for Windows NT? DragonDictate and Notebook Computers DD for Windows and PC XWare Do you get hoarse from using DragonDictate ?

DragonDictate support on the net

DragonDictate support is now available over the internet at support@dragonsys.com

Return To Contents List

How Easy is it to use DragonDictate ?

From: Dana Bergen

>I had a demo of DragonDictate today. I have a couple of questions, >though. How easy is it to install and learn? The reseller wants what I >consider a hefty chunk of money ($250 to install + ($250 x 2 for two >4-hour training sessions) = $750 total) to install and train me on it.

This is insane. You don't need anyone to train you on it. It comes with a tutorial and it's not difficult to use. The "more advanced" features like creating macros and using dcoms are reasonably well explained in the manual.

>I'm pretty comfortable installing things in my PC (I put in a sound >card and a tape backup unit myself), but he was talking about >configuring interrupts, which I know nothing about.

I didn't install the card myself because my hands aren't up to using a screwdriver but I don't think it's any big deal. I think that configuring the interrupt is just a matter of setting a switch on the board. If you're on a network there are some additional issues. If you're concerned about this you might try negotiating a much lower price for him to just do the install. Better yet, try it yourself and only pay for help if you get stuck.

>following a tutorial and reading a manual. On the other hand, I want >DD to work, and I want to feel comfortable using it, otherwise it's a >waste of $$$.

With respect to the installation, it will either work or not work. It's not going to work badly or differently because you installed it wrong.

I think your reseller is trying to recoup the money he's not making since they cut the price.

Return To Contents List

DragonDictate Upgrades v2 to v3

From: taylorw@marie.mit.edu (Washington Taylor)

Joe Steffen writes:

I moved my DragonDictate 2.0 voice files to a PC with DragonDictate 3.0 and converted them with the modvoc program that's used for upgrading to 3.0, then used DragonDictate in my normal work for a few hours. Modvoc copies all your words and macros and preserves your voice training, but it still has a few problems:

1. Word punctuation attributes are not preserved, both for words you added and special character punctuation you changed, e.g. I changed "*" to cling left and right so it's easy to use in file name and regular expressions.

Do you keep most of your macros in files? If you do, it is easier to keep track of and edit them. Furthermore, when you upgrade you can simply edit those files to the new format and fix punctuation automatically. I haven't upgraded to 3 yet, but even upgrading from 1 to 2 it only took a few minutes to write emacs macros to update my macro files.

2. Trailing spaces on words are removed. This is a problem for me because I define most computer command names to have a trailing space and cling right so I can say "*" after them.

Again, this problem would be fixed by using macro files. If the internal representation changed, you could use a command like add-word /t /g "foo" "foo " r (version 2 syntax)

I went through the first part of my vocabulary online and counted over 170 words such as file suffixes like ".bat" and parts of file paths such as "../". I estimate I have over 200 such words and special characters with changed punctuation attributes, so unless modvoc is fixed I'm not spending the money to upgrade. Note that there is no way to dump words in DragonDictate 2.0 so all of the above has to be corrected by voice.

Again, using macro files would eliminate this problem.

I had the same error rate (3%) as with DragonDictate 2.0. Has anyone seen an improvement in recognition accuracy after upgrading from 2.0 to 3.0?

I had 98% recognition with version 1. I have 98% recognition with 2. I expect to have the same with 3 and the windows version unless they have radically improved something. The only difference was the time to reach the plateau, which was months for 1 and days for 2.

> From: "Susan Maller ()"

> Has anyone out there upgraded from Dragon 2.0 or 2.01 to Dragon 3.0?
> How do you like it? Do you notice a significant difference? PLEASE
> REPLY. Susan Maller maller@madonna.coedu.usf.edu

Yes, I'm on 3.0 Classic - still with a 30K vocabulary. I found that recognition has improved, particularly for words like "last" "cast" "castle" in which the British flat "a" caused a problem. I no longer have to try to sound like an American on these :-)

Also slightly faster, I think, but that is subjective and I have no proof. So, no significant difference but I'm happy with the upgrade.

Return To Contents List

What Sound Cards Can I Use ?

DragonDictate for DOS uses the IBM M-Audio Acquisition and Playback Adapter, M-ACPA, which is an ISA-based card. This card is used for digitizing the audio and for doing FFTs on the digitized samples to assist recognition and reduced the CPU load. Read on for further information about these cards and the cards used by the windows version...

From: Scott@ccgate.dragonsys.com

>Also, (forgive my ignorance being a non-PC oriented person) could
>someone tell me whether there is a PCMCIA, or PCI M-ACPA card
>available, or a similar card which DD can use ?

There is not a PCMCIA version of the M-ACPA card. At this time, DragonDictate for DOS can only use this card. As you may have gathered from reading the mailing lists, DragonDictate for Windows can operate on a Windows sound card like a SoundBlaster 16, the MediaVision PAS16 and the Microsoft Windows Sound System to name a few.

Return To Contents List

DragonDictate for Windows or DOS ?

From: Jack

>> but in my opinion, the technology just isn't there to >>give you both adequate performance and to also have the DragonDictate menu pop >>up on the workstation screen.

>I'm puzzled by this remark. I have the DragonDictate menu on my workstation >screen, and the performance seems quite adequate to me. (The accuracy, on the >other hand...but that's a different topic.) Do you mean that >you experienced a noticeable delay between saying a word and seeing it >typed, or that you had to wait for menus to be drawn? This has not been >my experience. Or do you mean that you can speak more quickly if the >menu is not exported?

What I mean is the following. I regularly use Dragon to run an X display. The way I'm using it is to have a PC monitor next to my workstation monitor. After using this for about 1 1/2 years or so, (the point being that I had become accustomed to a certain level of performance) I saw a demo of the Windows product. Point blank the performance was visibly worse than what I am used to. I surmised that the reason for this was that the Windows display takes processing power to update, which is true. The Dragon Systems rep basically agreed with me, though he was surprised that I noticed. The main thing is, anything you ask the PC to do other than voice recognition is taking cycles away from the recognition engine and giving them to some other task like updating the VU meter, for example, which is constantly responding to the volume of your voice.

Someone else said they didn't think that the Windows version was slower, and then went on to explain that they were already using an exported menu that appeared on their actual workstation display and explained that since the exported menu was already taking a certain amount of processing power, that the additional amount required to update and maintain the Windows display was insignificant compared to what they were already putting up with.

My problem is that I could easily see that the Windows version was slower than what I was using; since what I'm using needs to get faster, not slower, this is not a solution I am willing to consider. Also, since I rarely have to look at the PC screen anyway as I just watch what happens in my X display, the benefit of running on a single machine or of having an exported menu pop up on my workstation (and cause the problems mentioned on this list with blotches due to bugs in deskview/X) is of little or no use to me. What I want is raw performance, period. Anything that will adversely affect that, and I could easily tell from the demo that the Windows display would, is just not going to make it with me. Added to that, the Dragon rep basically admitted that it *was* slightly slower, so I basically bailed on the Windows product. This is not to say that I'm not into DragonDictate; I am, it saved my career. I just won't do anything that will slow my scenario down.

From: steffen@iexist.att.com (Joe Steffen)

I installed DragonDictate for Windows last week. The first problem is you have to cancel the new user dialog and follow the README instructions to change the voice board default to the M-ACPA board.

The second and worst problem is you can only transfer some macros from DragonDictate for DOS; you lose everything else: voice model training and all added words (I have a significant number of acronyms and UNIX

command names and options). After two calls to technical support it wasn't clear which macros can be imported into DragonDictate for Windows; the format of special keys like control keys may have changed, so you will need to write a conversion script. You can't import macros with dcom's because they are replaced by a scripting language.

The third problem was the tutorial quit after an internal error 4 times. After doing the quick training, the tutorial finally worked. DragonDictate for Windows operates differently so retraining yourself will be necessary, e.g. you say Voice Menu instead of Voice Console. I'm sure you can define a compatibility macro, but the macro language documentation is on-line and not in the printed manual, which I consider to be a problem since it is easier for me to read a paper manual then control a help program by voice.

So now I'm considering upgrading to DragonDictate 3.0 since I will continue to use DragonDictate for DOS for most of my work, which is on UNIX and a Macintosh.

From: Sebastian Seung

I just got my DOS to Windows upgrade from Dragon Systems. The user interface is well done, but the documentation is not so good. My greatest disappointment is that it doesn't work with PC-XWARE. I called Dragon's technical support, but they were ignorant of the problem. Does anyone know the reason for the incompatibility? Or has anyone else found a compatible X terminal program for the PC?

Return To Contents List

DragonDictate vs Kurzweil Voice

From: George Hu Subject: Kurzweil Voice

I am fortunate to have both Dragon Dictate and Kurzweil Voice for Windows, and would like to provide some comparison. It seems that Dragon really dominates this mailing list, possibly due to having multiple dealers on the alias. While Dragon is a very good product which has developed many features which are very useful, Kurzweil has some advantages which everyone should examine.

In my opinion, Kurzweil has a much better recognition engine. Out of the box, Kurzweil beats a trained Dragon, and over time it still beats Dragon. When I use Dragon, I find it mistakes words a lot, and often doesn't have the right word in a choice list of 10 words. Kurzweil, however, very rarely makes an error, when it does make an error it is usually on a word which does sound ambiguous, and the choice list of 5 words has the correct word in the list much more often. Dictating this whole document, I probably made less than a dozen errors! Kurzweil is also faster than Dragon on the exact same system. This may be do to Kurzweil still using a specific hardware board whereas Dragon is running off of a Windows sound system card. These two advantages mean that I want to use Kurzweil, but do not look forward to using dragon.

Dragon has a much better set of macros and customization. If you intend to do programming, or other non-dictation activities, Dragon may be the only system which can work for you. Dragon allows you to control the mouse and buttons by voice whereas Kurzweil does not. Dragon can read text off of buttons and allow you to speak them whereas Kurzweil only has a few predefined buttons you can say. Dragon allows you to create hierarchical macros and has sophisticated things you can do inside macros such as control spacing and

capitalization, Kurzweil does not.

Kurzweil is a simpler product to use. There is no command vs. dictate mode. There are no flags for spacing and capitalization you have to set before saying a word. Kurzweil allows you to correct spacing and capitalization afterwards. For correcting errors in previous words, you don't need to enter a special oops mode; you just say " backup 2" or whatever. Kurzweil has a manual of about 70 pages; Dragon comes with three manuals totaling over 315 pages. Kurzweil also comes with many application macros which I have found easier to use than for Dragon, although that probably varies a lot depending upon which programs you run.

Eventually, Kurzweil will probably have all the features of Dragon. It will be difficult, however, for Dragon to change their whole engine. Eventually, both these products will be put out to pasture by continuous recognition systems. Today, I think the choice is between recognition accuracy, and features. If you want a dictation system for actual English dictation and moderate application control, then Kurzweil deserves serious attention. If you intend to do programming, or other things which must be highly customized, then you probably need the features of Dragon.

Lastly, Kurzweil is retailing at about 1000, which is a bit more than Dragon. Both systems can run on similar platforms, but I think Kurzweil is faster. Sometimes, Kurzweil can require more virtual memory than Dragon, but both are basically memory hogs. I run both on a 66 megahertz 486 with 16 megabytes.

From: Gary R Noonan Subject: Re: Kurzweil Voice

My approximately year long experience with the DOS version and approximately 2 month experience with the Windows version of Kurzweil support the comparison provided below. The Dragon dealer was unable to make his system perform with anywhere near the accuracy of Kurzweil when I examined DOS systems. The Windows version of Kurzweil is indeed very good at voice recognition--even without training.

I recently found a method to have Kurzweil produce mouse clicks on selected windows. Simply start the Windows Recorder macro system (found in accessories window) and assign unique keystroke to the macro (such a Shift + Alt + Ctrl + a) and make the desired mouse clicks. Then create a macro in Kurzweil that issues the hotkey for the Windows Recorder macro. This procedure allows you to have the Kurzweil system perform mouse clicks by voice. You can of course also create macros within individual programs and have Kurzweil call them. I have created numerous voice activated macros in WordPerfect for Windows and call them from Kurzweil, often performing complex tasks with a single voice command.

Return To Contents List

DragonDictate vs IN3

From: Dana Bergen

>> I've been looking into IN3 and am considering buying it. However, there >> is no demo version, and no money-back guarantee. So as far as the >> company is concerned, I have to put down $700 sight unseen with no >> guarantees. Is there anyone in the Boston area (I'm in Waltham) who is >> using the product and would be willing to give me a short demo so I can >> get a better feel for this product before plunking down $700?

IN3 costs $700? Why spend $700 for a limited command set when you can

get a full-fledged dictation system (DragonDictate) for $1000?

I have no financial interest in this recommendation. I use DragonDictate and a coworker used to use IN3, and they are in two completely different leagues. I don't understand how IN3 can get away with charging that much given what DragonDictate costs now.

From: Nelson Sproul

>> I just got DD for Windows to use it with Unix. I don't know how smart that was >> (I'm beginning to wonder if I should have gotten IN3)...

you are better off with DragonDictate than in3.

when my hands first went bad, I wasn't aware of the DragonDictate/a2x option. Despite warnings from in3's customer service that I would "go crazy" using in3 as a substitute for typing (as opposed to just using it to handle mouse functions), I used in3 for one year, getting barely acceptable performance with a vocabulary of about 150 items. This vocabulary allowed me to spell words out, which was of course an excruciatingly slow method, though one I was still grateful for since it allowed me to continue work in this field.

Now, using DragonDictate, I have superior performance AND a vocabulary of 30,000 items. I mentioned this to an in3 rep, and all he could say was that my Sun, a sparc ipc, is not a very strong machine. I don't think this accounts for a difference in performance/utility of two orders of magnitude. I haven't seen in3 run on a PC, but I called Command Corp. (in3's manufacturer) today and they say in3's performance is comparable on the two platforms. I also asked what was the largest vocabulary size they would expect, and I was told "at least a couple hundred."

Needless to say, a vocabulary limited to hundreds of words is not acceptable for an English dictation system for adults. I have never flamed anyone/anything in my life, but it appears to me that, given the availability of DragonDictate and a2x, in3 is a hoax.

From: Nick Parker

Nelson Sproul wrote: never flamed anyone/anything in my life, but it
> appears to me that, given the availability of DragonDictate and a2x,
> in3 is a hoax.

I can see how using IN3 for text dictation would be very frustrating. I'd compare it to chopping down a tree with fingernail clippers. It's possible, but geeeeeeeeeeeez! It's certainly unfair to complain afterward about the design of the fingernail clippers...

I've never seen INCUBED represented as a "dictation system." It certainly isn't called that in the Command Corp marketing literature I received, nor in the IN3 product documentation I received when I bought the package.

It's all a matter of selecting the right tool for the job. Almost all applications require a large amount of command selection -- that's the nature of graphical user interfaces, and feature laden software. When you count up cuts and pastes, font changes, saves, moves, etc, even writing a simple text document has a LOT of command and data selection. In the case of CAD, DTP (which is almost indistinguishable from word processors these days), or other similar applications, the user-computer interface is comprised almost entirely of command and data selection. A good voice command system, like IN3, can perform these functions via voice, and drastically reduce the amount of button pushing you do in a day. A continuous dictation system might do the same, but at a much higher cost. Both dictation systems and command systems have their place -- it's a matter of selecting the right tool

for the job. Command systems will benefit everyone, and dictation systems will give an additional benefit to those who need it.

I don't think IN3 is a "hoax" -- at all. It is very robust and effective software. The last literature I saw lists the prices at $179 for the basic version, and $395 for the Pro version, which includes a very nice Audio Technica Pro 8 headset microphone. Not bad. And no, I don't have any affiliation with Command Corp. I'm just a satisfied customer: IN3 did what they said it would do.

From: Ann Marie Lawler

> IN3 costs $700? Why spend $700 for a limited command set when you
> can get a full-fledged dictation system (DragonDictate) for $1000?

Well, that's IN3 plus a top-of-the-line noise-canceling microphone.

If you're on MS-Windows, IN3 doesn't cost anywhere near $700 and if you're on a SPARC station you've got to add the cost of the PC, the sound card, and possibly the communication connection to DD. Maybe you've got a free com port, maybe you don't, it's just that much more hardware. That plus find a place for that second box, and keyboard, and screen... Sigh...

Then you also have to get a2x running. According to the documentation with the copy of a2x that I have (distributed with the X11R6 sources) it won't work with the Sun OpenLook version 3 (current release) out of the box. You have to have X11R6 running or a patched version of X11R5 with the XTEST extensions patched in.

> I have no financial interest in this recommendation. I use
> DragonDictate and a coworker used to use IN3, and they are in two
> completely different leagues. I don't understand how IN3 can get
> away with charging that much given what DragonDictate costs now.

Well, IN3 and DD are in different leagues. They are different products designed to do different jobs. One is a command system, one is a dictation system. I type just great. In fact, some of my co-workers think I type faster than I talk. My typing was not where my problems were starting. If you can't type at all I guess you need a dictation system. If you can still type and want to prevent further damage, maybe a voice command system is a better choice. One product is not necessarily better than the other, they're just designed for different jobs.

My problems started with that darn rat (ahhh... I mean mouse). When you squeeze both sides and hold down a button while dragging something around on a desktop, the stress goes right to the wrist. Added to that were multi key cords. ~F and ~B in vi as well as some of those lovely Alt-Function keys for Wordperfect had me stretched accross the keyboard like I was palming a basketball. Ouch!

If your hands are already so injured that even normal typing is no longer possible, I'm sorry to hear that and I guess you don't have much choice. I prefer to not get that bad. I replaced all the fancy command operations with voice macros. Now my typing doesn't bother me at all. I can even type faster than I used to because I've reduced some of the distraction when doing commands. I caught my problem early enough so I guess I'm one of the lucky ones. I'd rather do the commands and functions by voice and still type rather than be forced to do all of my typing by voice.

From: Simon Crosby

> From: Ann Marie Lawler

> Actually, I would not be suprised at all, having worked with
> a2x as well as other products which require "clever window manager
> key bindings". That's actually why I made the statement. There was
> just too much you cannot do with key bindings. After a while you
> also get tired of cluttering up configurations with obscure kludged
> together key bindings. And changing key bindings "on the fly" is
> not a lot of laughs. Most people don't what to be forced to be
> "clever" just to use something for a purpose to which it was not
> designed. Most people would rather use something that is easy to
> use and designed for the purpose to which they are applying it.

On the other hand, a2x is not a product, nor does it claim to be. It solves a problem, and does it exceedingly well. There are lots of people out there (like me) who cannot type. My career would be in the dustbin (US = garbage can) by now if I were not in a position to: 1. Write technical documents 2. Write programs in lisp, C, assembler and various other gunk 3. Manage a computer network All by voice, on a unix workstation. DD is the ONLY product which I have seen which will currently allow all of these, in spite of its flaws.

> Actually, according to the sources, a2x has some pretty fancy
> features > built into it that many people don't even know
> about. Maybe because they > are so archane to try and figure
> out. "That's a control T ?what? for a > window class?" "But
> that command is suppose to do different things in > those
> different windows." And once you're set up, changing them on
> the fly > is difficult at best. And the recognizer still
> doesn't know what's happening > on the screen or if something
> succeeded or not. Then there's that extra > box and screen
> and keyboard and sound card...

Yes, a2x needs a language front end, and DD needs to be "application context aware". It also needs a *much* better undo mechanism than its current "throw out backspaces" idea. Ideally voice recognition/input should be an integral part of each application to guide recognition and so on ... One of these days perhaps... But remember, a2x is free. It also works well enough in conjunction with DD to be very useful.

> The thing about IN3 is that it is easy to setup and use and to
> change > commands while remaining a powerful command
> processor. It just does a lot > of things which cannot be
> done through key bindings. Things like warping > to a
> location within a window of a particular title. Or combining
> functions > where one function depends on the success or
> failure of a previous >function.

Great. I have no problem with IN3 -- If it solves a problem or has a niche, then I'm 100% behind it. Remember though, that not everyone has a sparcstation. What do I run on my alpha box ?

> It might be possible to combine key bindings with piles of shell >
> scripts and come close to some of the advanced features of
> IN3, but not all. > There are things which you still cannot
> do, even with key bindings and shell > scripts. But do you
> really want to spend all of that time writing clever > shell
> scripts to go with all those clever key bindings? Just to do
> a few > of those things which key bindings cannot do? Just to
> use a product for > something it was not designed for?

No I don't want to spend hours doing this. I spent about 1.5 weeks, once, and now I can do almost everything I need. Admittedly not very sophisticated, but it works. If you can add value in a product and people will buy it, then great. I wish you the very best of luck. And yes, I'm sure you have fantastic functions which I'd love to have.

> If you need a dictation system, get a dictation system. If you
> don't > need a dictation why get one to do something other
> than dictation? Different > products for different jobs.

My DD world is more than a dictation system, it is my whole human-computer interface. This may well be true of IN3, now or someday, and I agree IN3 can help save people's hands by reducing hand strain.

Return To Contents List

What helps / hinders recognition ?

From: steffen@iexist.att.com

>From att!x.org!pub-mailer Mon Sep 19 17:19:33 1994 From: dorab@twinsun.com (Dorab Patel) To: a2x-users@x.org Subject: what helps / hinders recognition

The recent discussion about hoarseness and recognition efficiency during a cold reminded me of a question I've been meaning to ask...

In your experience, what do you find that helps recognition accuracy? What seems to hinder recognition accuracy?

I keep my office door nearly all the way closed,otherwise the higher background noise increases errors. I'm vigilant about correcting misrecognitions and if I ever leave the mike on during a conversation so there are more false recognitions than I can correct, then I revert to the last saved voice models; otherwise your voice models get messed up and your error rate goes up until they are retrained. I keep track of common misrecognitions of voice macros and change one of them even if I've used one of them for a long time so my mental retraining is difficult. For example, [quit UNIX] often sounded like [quit emacs] so I changed the former macro. In 11 months my error rate dropped gradually from 8% to less than 3%.

Return To Contents List

How About DragonDictate for the Mac?

Articulate Systems' licence DragonDictate for the Mac, and the product is called PowerSecretary. Anyone with a review please let me have it. Articulate Systems: +1 617 935-5656

From: "Gary L. Karp" Date: Tue, 1 Nov 1994 06:54:27 GMT

A brief update on my recent post on the PowerSecretary dictation system for the Mac from Articulate Systems.

I had understood it was necessary to dictate into a separate window and then copy into the application. This has turned out to be only partially true. One may dictate into any application, but cannot correct by voice unless they work in the separate window.

The good news is, an update will release in November which corrects that. It will be possible to dictate and correct in any application window.

I feel confident based on discussion with Articulate that they are committed to eventually meeting the full set of Dragon features on the Mac. I will be getting the system, and will report as I get it running.

It will remain necessary to have a minimum 040 system. I am getting a PowerPC. It will also run on PowerBook 540s without added boards or peripherals - except the microphone, of course.

A company in the Bay Area, Scott Tech, has a solution whereby Dragon is pumped through a small PC and out to a Mac in ADB format. This remains the answer for pre-040 Macs.

Return To Contents List

DragonDictate and Notebook Computers

From: Scott Jangro

>From: Bob Wentworth

>I just talked to Dragon technical support about using Dragon on a >notebook. >They say that most notebook sound systems don't do a good job of >emulating industry standard sound boards, and that Dragon does not >work well on these. However they do know of one notebook that is >100% compatible with the Microsoft Windows Sound System. Dragon >works fine on that. FYI, Dragon is at (617) 965-5200.

To save you a toll call, here is the Windows Sound System compatible sound card that I think somebody here told probably told Bob about:

WAV Jammer PCMCIA sound card New Media Corporation Irvine, CA 800-CARDS-4-U

This is not an entire notebook solution but a PCMCIA card that will plug into a notebook with a PCMCIA slot. We have tested the card here at Dragon and it does work very well with DragonDictate for Windows. It is a Windows Sound System compatible card and like the real Windows Sound System, it requires the use of a condenser type microphone (as opposed to a dynamic microphone which is what we've traditionally shipped with DragonDictate). We do provide either type microphone with the DragonDictate for Windows.

It is true that some sound card emulations do not do a good job at mimicing the real thing, but I would not say that it is necessarily *most*. The truth is that we don't yet know if most of them will work or not. The point is that one shouldn't assume that a card is truly Windows Sound System compatible (or SoundBlaster 16 compatible) just because it says it is. For example, it may allow you to run Windows Sound System's software drivers but the electronic characteristics of the hardware may not be of the same quality as the real Windows Sound System. While this work well enough to do recording and playback in Windows or to play WAV files, this may not work well on a technology like speech recognition that relies heavily on good quality sound.

As far as information on any other sound cards goes, we are in data collection mode right now. We do rely quite a bit on user feedback for this infomration in addition to our own testing so if you have any information on notebooks or sound cards that work well or not with DragonDictate for Windows, I'd like to hear from you. Thanks.

From: Scott Jangro

We're currently putting together lists of laptop computers that work well with DragonDictate for Windows

The company that you called has no connection with Dragon. That company is unique because they have a laptop that can accomodate an ISA card. This is important for people who use the ACPA DSP card for

DragonDictate (required for the DOS product). Therefore, we refer customers to them as the only vendor that we know of with this kind of laptop. FWIW, I apologize for the difficulty you had in contacting them.

Now that DDWin can run on a standard Windows sound card, we have many more options. We're currently running experiments on different systems to put our seal of approval on some laptops that provide the best quality performance. Speech recognition is a very specialized use of sound input and requires high quality speech samples for good performance. Many sound cards just do not provide the quality sound that we feel is important for our product to perform the way we know it can. So while most if not all 16 but sound cards would pass the "go-into- the-software-store- and-see-if-it- runs" test, only a subset of those would produce the quality sound for good speech recognition. It takes hours and hours of testing per card or laptop to determine this level of quality and we will provide this information to you as soon as it is known to us.

At this time I can tell you that users are running DDWin successfully on the following computers. We have purchased these machines and are in the process of certifying them. We DO NOT guarantee them at this time but preliminary tests are promising.

Toshiba 4800 DX4-75mHz Everex Stepnote DX4-75mHz Ergo 100mHz IBM Thinkpad 755 WAVjammer (PCMCIA card)

Return To Contents List

How About DragonDictate for Windows NT?

From: Simon Crosby

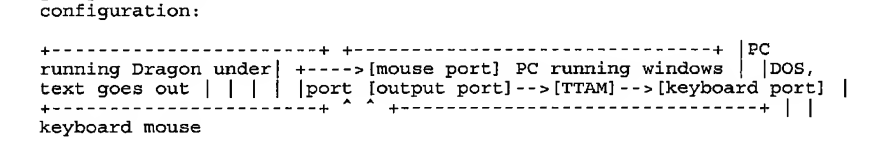
A person in Cambridge suffering from early stages of RSI wants to know whether there is a DragonDictate in the pipeline for NT. Anybody know?

Also, has anybody done the equivalent of a2x for NT? I mean, PC doing the recognition and an a2x-like thing on an NT box. Is this possible (thankfully I have no knowledge of windows or nt)

From: Hans Heilman

>> Also, has anybody done the equivalent of a2x for NT?

There is a hardware solution called a TTAM that takes ascii output from one PC and converts it into the correct electrical interface to go into the keyboard port of a second PC. It also does mouse emulation going into the second PC's mouse port. I think this is the configuration:



A friend of mine has been using this setup for a while so he could use Dragon for Windows development, before the DDWIN release (he was willing to live with having to have 2 PC's). As an experiment, he swapped the righthand PC to be one running NT and everything seemed to work fine.

The TTAM is around $400 -- a company called something like Prentke-Romich sells it (along with other assistive technology). If you send me mail, I'll get the real name and address.

From: dana@sybase.com (Dana Bergen)

You couldn't control the mouse by voice with this setup, could you? Because Dragon for DOS doesn't have that capability.

From: dp@world.std.com (Jeff DelPapa)

If you have a PS/2 mouse, the ttam will control it. (takes special key sequences, but they can be done as voice macro's) The one I had (it is currently on extended loan) also had a MAC ADB connector, and could spoof both keyboard and mouse on that machine. Mine was made by Words+ in northern CA (who make lots of adaptive products) but they have since stopped. The box was originally designed by the Trace Center at UWisc/Madison, and was licensed to several vendors.

Having said all that, there may be a minimal hardware solution. Under DOS, and Windoze 3.1 there is a "handicapped access pack" (available free for the asking from IBM and Microsoft respectively) One of the many things it provides is "serial keys" a setup that lets the keyboard and mouse be driven by data on the serial line. (you send "sentences" to access characters outside of the normal printing ones)

I don't know if NT has such a facility, but since it was developed after the access pak became available, they may have built it in from the start. If someone has the NT doc set and wants to take a quick look, it would be appreciated. (I will be looking into this myself shortly, a co-worker will be in this spot soon)

All of these presume a two computer solution. In the case of NT, with suitable software, you can use the DV/X trick and get the menu's to share the main screen. (dragon/dos won't run in a less than full screen ms-windows dos box, the video emulation isn't good enough).

In the case of the TTAM, it does not support ps/2 scan code 3 keyboards (unfortunate, as that is the code set that many X terms that adopted PC keyboards use), so check yours. The vanilla PC (big 5 pin plug) keyboards are fine. The program to convert key events to the sentences needed by either ttam or the access pack does not exist in the public domain. The Word+ people used to include a copy if you bought a ttam, but they wouldn't sell it separately, and it may be essentially unavailable now. I don't know what the others do.

From: dp@world.std.com (Jeff DelPapa)

I am glad we have the windoze NT documentation in machine searchable format. NT does indeed have a handicap access pack available for it, the page that tells you how to get it is in the appendix of the SNA Server development kit installation guide (I kid you not). Anyhow it is /softlib/mslfiles/wn0789.exe on ftp.microsoft.com.

I got a copy, but haven't tried it yet. (toby will do so on monday). Since I have the disks, I suppose I should try installing dd/win on NT and see what happens.

From: Hans Heilman

One place I know the T-TAM can be ordered is:

Prentke Romich Company 1-800-262-1984

Their catalog carries a number of assistive devices, and also sells the T-TAM, apparently to connect their assistive devices to a PC (although it can also be used to connect 2 PC's together). They have

a fact sheet on the T-TAM which can be included.

They list several different T-TAM models on their price list, so be clear with them on the details.

Apparently, the T-TAM does have special input escape sequences defined which can cause it to generate mouse button actions, although my friend found that behavior to be somewhat flaky in different PC configurations (as opposed to the straight ASCII character input which worked fine). He was fairly frustrated with mouse emulation difficulties.

He was running PROCOM+ on the Dragon PC to send Dragon-generated text out the COM port, but ran into a limitation. Apparently, PROCOM+ allows user-defined sequences to be found to different keys, but the limit is 10 characters, which wasn't long enough for al of the special T-TAM sequences. He worked around this by coding a small ad-hoc program which reads input and sends it to the COM port.

Return To Contents List

DD Windows and PC X Servers

From: Scott Jangro

>>>>>>>>>>>>>>>

has anyone used PC XWare with dragon? so far it looks like it might have problems... .

<<<<<<<<<<<<<<< We have heard of problems between DragonDictate for Windows and PC-Xware and I have followed up with the publisher of PC-Xware. Unfortunately, they have confirmed that their PC-Xware will not be compatible with DragonDictate for Windows. Further explanation below for those interested...

As you may know, DragonDictate inserts keystrokes into the active Windows application. DragonDictate uses the same Windows facility as the Windows Macro recorder does to play keystrokes into a Windows application. Any Windows application that follows the Windows application development guidelines will be able to get input from the Macro recorder and from DragonDictate for Windows.

PC-Xware doesn't follow the Windows conventions for getting keystrokes. Instead, it goes down to the DOS level, below Windows, to get the keys. Therefore, they miss the keystrokes that DragonDictate for Windows is sending. They also told me that they're aware that they do not work with the Windows macro recorder.

I wish there was something that we could do to make DragonDictate for Windows work with this application as it looks like a great solution for X/Windows users. They didn't say if they were planning on changing their application to conform to these Windows standards or not. If anybody does come across a Windows X/Windows emulation, I'd be very interested to hear about it.

From: Jeff DelPapa

I used Hummingbird's eXceed with DD/win. Worked fine. I will also give the DEC (eXcursion I think) a try (it is what the UK branch standardized on), when I am in the mood for shuffling floppies again.

Return To Contents List

Do you get hoarse from using DragonDictate ?

From: rbd@sst.ll.mit.edu (Robert B Dunn)

I am looking for some advice on using DragonDictate. The problem I have (which I think is fairly common) is that I get hoarse fairly quickly. Unfortunately this happens so quickly that I have not been able to make much use of DragonDictate and a2x, although I have had them for a few months. I now frequently get hoarse during normal conversations and occasionally have to stop talking to people. I use the following strategies to reduce the stress of using DragonDictate:

1) speak softly,

2) drink very frequently.

The following summary of a discussion of hoarseness was made by Scott@ccgate.dragonsys.com (Scott Jangro).

++++++++Original E-mail Posting++ I have been reading peoples' summaries of their experience with voice input for performing programming and related tasks, since I have considered use of this technology myself for a worsening RSI problem. It all sounds quite encouraging. However, at this time I have a few questions/concerns perhaps someone can address:

1) have the users of voice input at work found that their talking disturbs their officemates? Has anyone needed to arrange for having an office to themselves? It seems that when office space is limited this may pose a problem.

2) has anyone experienced hoarseness or similar problems attributable to the increased talking? Is it possible we may be partially substituting one problem for another?

3) speaking of hoarseness, how do Dragon and the other packages perform when the user has hoarseness due to voice strain or a cold? Does recognition suffer significantly?

Any insight on these questions would be appreciated. Thanks!

++
1) have the users of voice input at work found that their talking disturbs their officemates? Has anyone needed to arrange for having an office to themselves? It seems that when office space is limited this may pose a problem. ---------- this can be a problem.

2) has anyone experienced hoarseness or similar problems attributable to the increased talking? Is it possible we may be partially substituting one problem for another?

No problems...

3) speaking of hoarseness, how do Dragon and the other packages perform when the user has hoarseness due to voice strain or a cold? Does recognition suffer significantly?

I've found that if I already have a sore throat, working by voice can aggravate it. However, I have not had recognition problems even when *completely* stopped up (as in runny nose, congestion, etc.).

++
>their officemates? Has anyone needed to arrange for having an office to >themselves? It seems that when office space is limited this may pose a >problem.

I work in a cubicle. Most of the people around me say that my talking is "white noise" that doesn't bother them. Apparently one person has complained, and as a result I may be getting a private office (which I wouldn't normally rate) when my group moves in a month for two. If this happens I'm certainly not going to complain :-)

>2) has anyone experienced hoarseness or similar problems attributable >to the increased talking? Is it possible we may be partially substituting one >problem for another?

I had really bad voice strain the first day or two, but I changed the way I was speaking and the problem when away. I had taken a singing class and been taught how to project without straining my voice. When I used that technique I stopped having voice strain.

>3) speaking of hoarseness, how do Dragon and the other packages perform when >the user has hoarseness due to voice strain or a cold? Does recognition >suffer significantly?

I have allergies and my level of congestion varies a lot. Mostly it's not a problem. Sometimes on a particularly bad day I notice the recognition being a bit worse, but it's not a real big difference. I have two frequently used macros, [sniffle] and [clear throat], which don't type anything. They work really well!

Here's the mail I sent in response to the original inquiry, since people other than that person seem to be interested:

I'm a Senior Software Engineer at Sybase. I do new feature development on the SQL Server, which is our core product. I investigate problems, write specifications documents, write code, and fix bugs. My work is in C in a Unix environment.

I use DragonDictate all day long. I can't type at all without pain, so I do everything with DragonDictate. I think that the effect on my programming productivity is minimal; i.e. I get pretty much the same amount of work done with DragonDictate as I used to get done typing. It's a little more of an impediment when writing a document; I create documents somewhat more slowly than before. However, I'm perfectly capable of doing what's needed for my job. I was a very fast typist; DragonDictate makes me more like a fairly slow typist. There are plenty of engineers here who are not super fast typists who do a good job. My company expects the same amount of work from me that they expect from other people, and this has not been a problem.

There was a pretty significant amount of time required to get going with DragonDictate in a Unix programming environment. Getting the various pieces of software and hardware working together correctly took some doing; getting macros and such set up took some doing; getting used to using DragonDictate took some doing. I spent a fair amount of time after hours working on my environment for the first month or two. During that period of time, I was doing my job using DragonDictate but wasn't as productive as I am now with it.

++

1) have the users of voice input at work found that their talking disturbs their officemates? Has anyone needed to arrange for having an office to themselves? It seems that when office space is limited this may pose a problem.

> > > I have found that I can dictate pretty softly, and it seems to work better that way anyhow. Outside noise doesn't seem to disturb DragonDictate much, though. Classical music is just fine, as are conversations in the hallway, but it doesn't seem to like Devo music! As for disturbing my neighbors, as long as I talk relatively softly, that doesn't seem to be a problem (no worse than having a neighbor who spends all day on the phone, which is normal for some environments). I think privacy may be more of an issue: you need to realize that now people can hear you writing your email! (Already a problem with phone conversations).

2) has anyone experienced hoarseness or similar problems attributable to the increased talking? Is it possible we may be partially substituting one problem for another?

> > > Yes, hoarseness is a problem. Much better when I talk softly, which is desirable anyway. I also drink a lot of water and tea. You should treat it like typing -- don't do it for hours without stopping once in a while for a break. When I first got the system, my head, neck, and shoulders bothered me more, until I realized that I was essentially shouting at the system (like teaching a class without a microphone and trying to project all the time). This is less of a problem now that I've learned that it works just fine with soft speech.

3) speaking of hoarseness, how do Dragon and the other packages perform when the user has hoarseness due to voice strain or a cold? Does recognition suffer significantly?

> > > Yes, it does suffer. It's really fun to dictate while crying! :-(You need to be sure not to save your voice files after such a session so as not to screw it up. It does still work, though.

Any insight on these questions would be appreciated. Thanks!

++

hoarseness has not been a problem for me, even when I was pulling a lot of all-nighters last summer/fall.

the following will help keep you going longer:

1) sip water frequently, and don't wait for your throat to get dry before you get something.

2) speak softly and steadily

3) avoid drinks with caffeine or the harsher pops. (I don't know what the mechanism is, but avoiding caffeine was suggested by a friend who is a singer. I did find that my throat would feel dryer and more irritated if I had had a lot of pop and I had been working at the computer.)

There are many professions where people use their voice all day. Its good to get suggestions from them. We have an advantage, because our voices must only carry to the microphone.

++

1) have the users of voice input at work found that their talking disturbs their officemates? Has anyone needed to arrange for having an office to themselves? It seems that when office space is limited this may pose a problem.

DragonDictate is sensitive to noise, particularly to drawers and binders closing, although you can train an empty macro to these sounds it does interrupt and slow you down. I think a private office is important; don't be afraid to mention the American Disabilities Act.

2) has anyone experienced hoarseness or similar problems attributable to the increased talking? Is it possible we may be partially substituting one problem for another?

I sip water all day and have had problems with hoarseness only when I let my cup stay empty. Drinking water also forces me to take breaks to go to the restroom.

3) speaking of hoarseness, how do Dragon and the other packages perform when the user has hoarseness due to voice strain or a cold? Does recognition suffer significantly?

DragonDictate works surprisingly well when my voice sounds different from normal.

++
+

> 2) has anyone experienced hoarseness or similar problems
> attributable to the increased talking? Is it possible we may be
> partially substituting one problem for another?

I am responding to this question because I have had a particularly bad experience in this area.

I began using Dragon extensively at the beginning of this year. After a couple of months, I noticed my throat was getting sore each time I used it. Being a performer in amateur theatre, I found that I was having to quit using Dragon by Wednesdays so that my throat could recover for a weekend performance. (In a dozen years of singing and acting, I have never experienced voice problems from performing.)

The problems persisted and worsened. I asked our medical department if a voice therapist could be brought in to see what I was doing wrong. Nine weeks of aggravating bureaucracy later, I saw an ENT (ear, nose, throat) doctor who told me I had modules on my vocal cords. I immediately stopped using the system.

While the nodules have since faded away, I continue to have pain in my throat from speaking (regular speaking). So now I can neither type nor talk confortably.

There is one other person here that uses Dragon, and though he is able to use it, he, too, had some much less severe throat problems along the way. Even now, if his allergies act up, he has some difficulty.

I am glad to hear that others have not had much problem with this, but be advised that it can occur. This possibility is also noted in the best book on RSI we have yet to find, on p. 168 (RSI A Computer User's Guide, by Pascarelli and Quilter).

Return To Contents List

Simon.Crosby@cl.cam.ac.uk

From: lisa
Sent: Wednesday, November 02, 1994 1:17 PM
To: 'software-checkins-dist'
Subject: gnu-tools/sim/terp cycles.h

```
Update of /p/cvsroot/gnu-tools/sim/terp
In directory calliope:/N/auspex/root/s6/lisa/src/gnu-tools/sim/terp

Modified Files:
      cycles.h
Log Message:

Added trace_register() function and TRACE_REGISTER macro.
```

From: lisa
Sent: Wednesday, November 02, 1994 1:21 PM
To: 'software-checkins-dist'
Subject: gnu-tools/sim/terp execute.h

```
Update of /p/cvsroot/gnu-tools/sim/terp
In directory calliope:/N/auspex/root/s6/lisa/src/gnu-tools/sim/terp

Modified Files:
      execute.h
Log Message:

- Added extern declarations of new variables last_regs and last_thread, which are used to
track the most recent instruction that modified a register.
- Added macro TRACE_COMMIT, which picks out the appropriate information for a
TRACE_REGISTER of the destination register(s).
```

From: lisa
Sent: Wednesday, November 02, 1994 1:24 PM
To: 'software-checkins-dist'
Subject: gnu-tools/sim/terp execute.c

```
Update of /p/cvsroot/gnu-tools/sim/terp
In directory calliope:/N/auspex/root/s6/lisa/src/gnu-tools/sim/terp

Modified Files:
      execute.c
Log Message:

- Added new variables last_regs and last_thread, which are used to track the most recent
instruction which modified a register.
- Clear those two variables if the call to sim_load_store() returned a failure status.
- Before leaving, if last_regs is not NULL, do the register commit trace.
```

From: lisa
Sent: Wednesday, November 02, 1994 1:25 PM
To: 'software-checkins-dist'
Subject: gnu-tools/sim/terp cycles.c

```
Update of /p/cvsroot/gnu-tools/sim/terp
In directory calliope:/N/auspex/root/s6/lisa/src/gnu-tools/sim/terp

Modified Files:
      cycles.c
Log Message:

When turning tracing on for the first time, clear last_regs and last_thread.
```

From: lisa
Sent: Wednesday, November 02, 1994 1:44 PM
To: 'software-checkins-dist'
Subject: gnu-tools/sim/terp execloop.c

```
Update of /p/cvsroot/gnu-tools/sim/terp
In directory calliope:/N/auspex/root/s6/lisa/src/gnu-tools/sim/terp

Modified Files:
      execloop.c
Log Message:

- Removed check of dcachep->needs_copy; gave up on this optimization.
- When cache tag becomes dirty, record the tag write for hazard detection.
- When data_access() returns failure status, clear last_regs/last_thread.
- Changed E_TPROT exceptions to F_IFETCH or F_BRANCH, depending on context,
  so that the real exception is given from within insn_fetch().
- Near top of loop, trace the register commit for the previous instruction
  (if last_regs is not NULL).
- When updating register scoreboards for current instruction's destination(s),
  record current reg_ptrs and thread in last_regs and last_thread.
- Moved check of hth_da_incomplete so that we don't miss any cycle-counting
  code -- just want to avoid (re-)counting the instruction.
```

From: lisa
Sent: Wednesday, November 02, 1994 1:57 PM
To: 'software-checkins-dist'
Subject: gnu-tools/sim/terp memory.h

```
Update of /p/cvsroot/gnu-tools/sim/terp
In directory calliope:/N/auspex/root/s6/lisa/src/gnu-tools/sim/terp

Modified Files:
      memory.h
Log Message:

- Removed dcache field needs_copy; gave up on this optimization.
- Removed the nb-structure fields nb_rdep and nb_rdep1; more info is now
  provided by nb_regs (which includes register pointers, dependencies, etc).
```

From: lisa
Sent: Wednesday, November 02, 1994 1:57 PM
To: 'software-checkins-dist'
Subject: gnu-tools/sim/terp memory.c

```
Update of /p/cvsroot/gnu-tools/sim/terp
In directory calliope:/N/auspex/root/s6/lisa/src/gnu-tools/sim/terp

Modified Files:
      memory.c
Log Message:

- Fixed the (incorrect) calculation of the total size of the cache tags.
- Removed implementation of dcachep->needs_copy; gave up on this optimization.
- When cache tag becomes dirty, record the tag write for hazard detection.
- The nb-structure fields nb_rdep and nb_rdep1 are superseded by the new
  field nb_regs; modified all related code accordingly.
- When setting up the nb-structure for a non-blocking load, clear last_regs
  and last_thread (which were set in execute_loop()) -- the register commit
  will get traced later, in nb_access_alldone(), when the load completes.
```

From: William Herndon [bill@polyhymnia]
Sent: Wednesday, November 02, 1994 6:30 PM
To: 'tbr@polyhymnia'; 'geert@polyhymnia'; 'andrew@polyhymnia'; 'tvo@polyhymnia'; 'mudge@polyhymnia'; 'tfk@polyhymnia'
Subject: current thru the power poles

I did some calculations on the power thru the power poles.

1. max possible current thru 1 pole at 1/5 power power poles are spaced every 5 atoms along a spar. there are two flavors.
vdd and vss
each flavor then services ten atom rows. at 1/5 power, each atom has the potential of 10ua, and there are 237 atoms/row this leaves 2.37ma/row * 10 rows = 23.7ma max current per power pole

2. I counted the power poles on euterpe:: 483 (a little less than 47 of these should possibly be excluded.. the point is the number is better than 10% accurate)
since there are two flavors, 483/2=241 for each flavor power supply lead (vdd/vss)
The total nom power for euterpe is 55watts, 21 watts come from custom (non sofa stuff) this leave 34 watts for the sofa, reduced to 1/5 pwr this goes to 34/5=6.8watts, 6.8watts/3.3v=2.06amps, 2,060ma/241=8.54ma.

are we really only using 8.54/23.7 = 0.36 of the available power ?? in the xlu it was close to 0.8

I would like response to my numbers. Am i missing something?? if the numbers are ok then we need to respond to probe technology with..

current per pad = 8.5ma average 23.7ma max

I think it makes more sense for me to feed andrew the numbers and have only one point of communication between ourselves and probe technology.

From: Loretta Guarino [guarino@MicroUnity.com]

Sent: Wednesday, November 02, 1994 6:32 PM

To: 'gmo@MicroUnity.com'; 'wayne@MicroUnity.com'; 'jeffm@MicroUnity.com'; 'doi@MicroUnity.com'; 'sandeep@MicroUnity.com'; 'gregg@MicroUnity.com'

Cc: 'guarino@MicroUnity.com'; 'abbott@MicroUnity.com'; 'lisar@MicroUnity.com'; 'mudge@MicroUnity.com'; 'hestia@MicroUnity.com'

Subject: bring-up meeting of November 2

Next meeting: Nov. 9 at 10:00; we'll review the Euterpe Bring-up section of the schedule at this meeting.

Johnny Mudge joined us for the first hour to discuss component testing of Calliope and Euterpe. Ultimately, Johnny's group will produce packaged chips with a data sheet that will be written as testing proceeds. Johnny's group will also produce information about each chip they test - namely, what works and what doesn't. The test vectors will touch a large percentage of the functionality of Calliope and Euterpe. There is not yet a formal plan for these tests. Someone will either need to convert the verification group's dvts or write tests from scratch that generate vectors for the HP tester. Mark Warren is working on test vectors for Calliope, and will be looking at them for Euterpe.

Johnny will provide us with a plan for the test vectors. (This is to be worked out between Mark's group and Lisa's group.) Johnny will also produce a plan for tracking individual components.

Action item: determine whether we should interface Johnny's daughter card to our boards, or whether we can remove and resolder tab devices to the boards. (Wayne)

Action item: develop plan for tracking individual components in verification: is the logbook sufficient? do we need a database system? how does it relate to Johnny's tracking plan? (Wayne, Derek)

Review of old action items:

> Define parallel interface (Wayne, Gmo, and Sandeep)

Essentially done; Wayne will incorporate the description into the CBI document by Friday.

> Implement parallel port device drivers for sun and
> sgi (Sandeep, Derek)

This will be postponed until after the remote gdb work, closer to when real hardware will be available.

> Define the boot state for standalone tests (Jeff, Gmo)

Done. New action item: write boot code (Gmo)

> Write up a plan for virtual devices and their

> interaction with gdb (Gmo)
In progress.

> Build scripting/UI capabilities above gdb for
> regression tests (Derek)
No progress.

> Create a separate tool for loading FlashROM
> (Unassigned)
No progress [manufacturing issue].

> Implement remote gdb with the software simulator
> (Sandeep)
In progress. Current due date is November 9, although
Sandeep discovered more work than he expected.

> Find out who is driving the characterization testing
> of components, especially for Euterpe. (Loretta)
Done. See summary at the beginning of this message.

> Develop set of milestones and schedule for bring-up
> (Wayne, Derek, Loretta)
Done. New action item: Get durations for events on the
schedule (Derek)

> Add the Verification group's test control document
> to the bring-up plan.
No progress.

> Write a summary of the hardware bring-up process
> to cross-check with Wayne's schedule (Jeff)
Jeff obtained useful information from today's meeting, but
needs some time with Wayne before he can write the summary.

> Identify our bring-up tools and make sure we
> have plans for how we will debug them. (Derek, et al)
In progress.

> Develop plan for testing real-time software before
> the analog parts of calliope work. (Gregg)
I talked with Gregg after the meeting. The most practical
plan is to use Pandora when it is available to load data into
Hestia memory. Other options seem like more work than they
are worth.

> Verify SN3. (Wayne)
Done.

Action items from the CBI interface meeting:

> Find out if it is a requirement for SD to *remain* low
> for a reset (Wayne)
Done.

> Determine which pins can be software controlled on each
> of the parallel ports we are planning to support
> (Derek)
No progress.

> Ask Craig if an abort invalidates the byte in transit
> or the entire packet. (Wayne)

No progress.

> Understand how interrupts are generated by the parallel
> ports under consideration. (Sandeep, Derek)
No progress.

New action items:

Create performance test plans (Jeff, Loretta)

Add Unix-like tests to software acceptance tests. (Loretta)

From: Loretta Guarino [guarino@thessalus.microunity.com]
Sent: Wednesday, November 02, 1994 6:32 PM
To: 'gmo@thessalus.microunity.com'; 'wayne@thessalus.microunity.com'; 'jeffm@thessalus.microunity.com'; 'doi@thessalus.microunity.com'; 'sandeep@thessalus.microunity.com'; 'gregg@thessalus.microunity.com'
Cc: 'guarino@thessalus.microunity.com'; 'abbott@thessalus.microunity.com'; 'lisar@thessalus.microunity.com'; 'mudge@thessalus.microunity.com'; 'hestia@thessalus.microunity.com'
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Add Unix-like tests to software acceptance tests. (Loretta)

From: Buffalo Chip [chip@rhea]
Sent: Wednesday, November 02, 1994 7:23 PM
To: 'geert@rhea'
Subject: pager log message

```
page from chip to geert:
Release euterpe/verilog/bsrc/cc BOM 23.0 initiated by dickson completed @ Wed Nov 2
16:20:36 PST 1994 with exit status 0.. chip

all ports busy
all ports busy
all ports busy
all ports busy
all ports busy
all ports busy
all ports busy
all ports busy
all ports busy
all ports busy
all ports busy
```

From: Lisa Robinson [lisar@polyhymnia]
Sent: Wednesday, November 02, 1994 8:14 PM
To: 'craig@polyhymnia'; 'lisar@polyhymnia'
Subject: Registered copy generated

```
Copy created by:     lisar
Copy created at:     Wed Nov  2 17:13:38 PST 1994
Copy number:         281
Copy registered to: Manoj Puri
Input file:
/u/craig/documents/Terpsichore/Terpsichore.macps.gz.des
Output file:         /u/craig/documents/Terpsichore/Terpsichore.ps
Printed to:          rsh plotter lpr -PCraig
Recorded in file:    /u/craig/documents/RegistrationLog

[This message generated by /u/craig/bin/macpstops]
```

From: Lisa Robinson [lisar@polyhymnia]
Sent: Wednesday, November 02, 1994 8:36 PM
To: 'craig@polyhymnia'; 'lisar@polyhymnia'
Subject: Registered copy generated

```
Copy created by:     lisar
Copy created at:     Wed Nov  2 17:35:45 PST 1994
Copy number:         281
Copy registered to: Manoj Puri
Input file:
/u/craig/documents/Terpsichore/Terpsichore.macps.gz.des
Output file:         /u/craig/documents/Terpsichore/Terpsichore.ps
Printed to:          rsh plotter lpr -PCraig
Recorded in file:    /u/craig/documents/RegistrationLog

[This message generated by /u/craig/bin/macpstops]
```

From: tbr
Sent: Wednesday, November 02, 1994 9:30 PM
To: 'lisar'
Subject: forwarded message from Geert Rosseel
Follow Up Flag: Follow up
Flag Status: Red

------- Start of forwarded message -------
Return-Path: <geert@ambiorix>
Received: from ambiorix.microunity.com by gaea.microunity.com (4.1/muse1.3)
id AA06461; Tue, 1 Nov 94 23:20:25 PST
Received: from localhost by ambiorix.microunity.com (8.6.4/muse-sw.2)
id XAA01534; Tue, 1 Nov 1994 23:20:23 -0800
Message-Id: <199411020720.XAA01534@ambiorix.microunity.com>
From: geert@ambiorix (Geert Rosseel)
To: tbr@ambiorix
Subject: elib : found the problem .. me not crazy. just confused.
Date: Tue, 1 Nov 1994 23:20:23 -0800

Hi Tim,

I was looking in :

/n/auspex/s41/euterpe-proteus/proteus

Apparently that is different from :

/n/auspex/s41/euterpe-snapshot/euterpe/proteus

I though that Lisa had said that these two were linked together and were the same thing

When I do an ls in /n/auspex/s41/euterpe-proteus/proteus/verilog

I get :

BOM	Makefile	dclib	eclib	mlib	xlib	zclib
BOM.BAK	cerbmaster	diff.h	exlib	src	zblib	zeblib
CVS	clib	dxlib	libsrc	wrappers	zblibsrc	zxlib

NO elib or delib ...

Geert
------- End of forwarded message -------

From: tbr
Sent: Wednesday, November 02, 1994 9:31 PM
To: 'Geert Rosseel'
Cc: 'geert'
Subject: elib : found the problem .. me not crazy. just confused.
Follow Up Flag: Follow up
Flag Status: Red

Geert Rosseel wrote (on Tue Nov 1):

Hi Tim,

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Clearly they are not the same. I copied lisar on our mail so we can figure out what's going on. I assume that one copy is the version taken by tar, and the other the one she was building from cold.

Tim

From: Tim B. Robinson [tbr@aphrodite]
Sent: Wednesday, November 02, 1994 9:31 PM
To: 'Geert Rosseel'
Cc: 'geert@aphrodite'
Subject: elib : found the problem .. me not crazy. just confused.

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Tim

From: Tim B. Robinson [tbr@aphrodite]
Sent: Wednesday, November 02, 1994 10:12 PM
To: 'William Herndon'
Cc: 'andrew@polyhymnia'; 'geert@polyhymnia'; 'mudge@polyhymnia'; 'tfk@polyhymnia'; 'tvo@polyhymnia'
Subject: current thru the power poles

William Herndon wrote (on Wed Nov 2):

I did some calculations on the power thru the power poles.

1. max possible current thru 1 pole at 1/5 power
power poles are spaced every 5 atoms along a spar. there are two flavors. vdd and vss each flavor then services ten atom rows. at 1/5 power, each atom has the potential of 10ua, and there are 237 atoms/row
this leaves 2.37ma/row * 10 rows = 23.7ma max current per power pole

2. I counted the power poles on euterpe:: 483 (a little less than 47 of these should possibly be excluded.. the point is the number is better than 10% accurate)
since there are two flavors, 483/2=241 for each flavor power supply lead (vdd/vss)
The total nom power for euterpe is 55watts, 21 watts come from custom (non sofa stuff)
this leave 34 watts for the sofa, reduced to 1/5 pwr this goes to 34/5=6.8watts, 6.8watts/3.3v=2.06amps, 2,060ma/241=8.54ma.

are we really only using 8.54/23.7 = 0.36 of the available power ?? in the xlu it was close to 0.8

My guess would have been 0.6. If geert has a top level topt log file we can find the exact number.

I would like response to my numbers. Am i missing something?? if the numbers are ok then we need to respond to probe technology with..

current per pad = 8.5ma average 23.7ma max

I think it makes more sense for me to feed andrew the numbers and have only one point of communication between ourselves and probe technology.

If you already know the number is 0.8 in the XLU, then clearly we have local areas where we may be well above the average. Should we be making the worst case assumption?

From: Lisa Robinson [lisar@nosferatu]
Sent: Wednesday, November 02, 1994 10:21 PM
To: 'Tim B. Robinson'; 'geert@nosferatu'
Cc: 'hopper@nosferatu'; 'tom@nosferatu'; 'brianl@nosferatu'; 'vant@nosferatu'; 'vo@nosferatu'
Subject: forwarded message from Geert Rosseel

Tim B. Robinson wrote (on Wed Nov 2):

```
   ------- Start of forwarded message -------
   Return-Path: <geert@ambiorix>
   Received: from ambiorix.microunity.com by gaea.microunity.com
(4.1/muse1.3)
         id AA06461; Tue, 1 Nov 94 23:20:25 PST
   Received: from localhost by ambiorix.microunity.com (8.6.4/muse-sw.2)
         id XAA01534; Tue, 1 Nov 1994 23:20:23 -0800
   Message-Id: <199411020720.XAA01534@ambiorix.microunity.com>
   From: geert@ambiorix (Geert Rosseel)
   To: tbr@ambiorix
   Subject: elib : found the problem .. me not crazy. just confused.
   Date: Tue, 1 Nov 1994 23:20:23 -0800


    Hi Tim,

    I was looking in :

      /n/auspex/s41/euterpe-proteus/proteus

    Apparently that is different from :

     /n/auspex/s41/euterpe-snapshot/euterpe/proteus

    I though that Lisa had said that these two were linked together and were the same
thing

    When I do an ls in /n/auspex/s41/euterpe-proteus/proteus/verilog

    I get :

   BOM             Makefile        dclib           eclib           mlib
xlib            zclib
   BOM.BAK         cerbmaster      diff.h          exlib           src
zblib           zeblib
   CVS             clib            dxlib           libsrc
wrappers        zblibsrc        zxlib

     NO elib or delib ...


                        Geert
   ------- End of forwarded message -------
```

Its a long story .....

I was building an proteus from scratch in /n/auspex/s41/euterpe-proteus/proteus
but brianl needed to rerun in /u/chip so we stopped the s41 build and instead took a tar
image of /u/chip so as not to hold up the snapshot
- remember we discussed it. Tom put this on /n/auspex/s23/euterpe-proteus-cp.

Then I needed some space to do the euterpe build so I made a euterpe in the euterpe-

proteus and asked tom to rename euterpe-proteus to euterpe-snapshot.
Howver since he didn't want to mess up work in progress he just symbolically linked it to euterpe-snaphot. The proteus used by the euterpe build does NOT point at ../proteus since that is not the snapshot proteus but to /n/auspex/s23....
I am still waiting for the go ahead from brian to restart the build from scratch proteus build which will probably be done somewhere else so as not to fill up /s41.

I will remove the dinosaur proteus in /s41.

Lisa R.

.

From: tbr

Sent: Wednesday, November 02, 1994 11:05 PM

To: 'Lisa Robinson'

Cc: 'brianl@nosferatu'; 'geert@nosferatu'; 'hopper@nosferatu'; 'tom@nosferatu'; 'vant@nosferatu'; 'vo@nosferatu'

Subject: forwarded message from Geert Rosseel

Follow Up Flag: Follow up

Flag Status: Red

Lisa Robinson wrote (on Wed Nov 2):

Its a long story .....

I was building an proteus from scratch in
/n/auspex/s41/euterpe-proteus/proteus
but brianl needed to rerun in /u/chip so we stopped the s41 build and
instead took a tar image of /u/chip so as not to hold up the snapshot
- remember we discussed it. Tom put this on
/n/auspex/s23/euterpe-proteus-cp.

Then I needed some space to do the euterpe build so I made a euterpe in
the euterpe-proteus and asked tom to rename euterpe-proteus to
euterpe-snapshot.
Howver since he didn't want to mess up work in progress he just
symbolically linked it to euterpe-snaphot. The proteus used by the
euterpe build does NOT point at ../proteus since that is not the
snapshot proteus but to /n/auspex/s23....
I am still waiting for the go ahead from brian to restart the build
from scratch proteus build which will probably be done somewhere else
so as not to fill up /s41.

Glad someone knows what's going on!

Tim

From: Tim B. Robinson [tbr@aphrodite]
Sent: Wednesday, November 02, 1994 11:05 PM
To: 'Lisa Robinson'
Cc: 'brianl@nosferatu'; 'geert@nosferatu'; 'hopper@nosferatu'; 'tom@nosferatu'; 'vant@nosferatu'; 'vo@nosferatu'
Subject: forwarded message from Geert Rosseel

Lisa Robinson wrote (on Wed Nov 2):

> Its a long story .....
>
> I was building an proteus from scratch in
> /n/auspex/s41/euterpe-proteus/proteus
> but brianl needed to rerun in /u/chip so we stopped the s41 build and
> instead took a tar image of /u/chip so as not to hold up the snapshot
> - remember we discussed it. Tom put this on
> /n/auspex/s23/euterpe-proteus-cp.
>
> Then I needed some space to do the euterpe build so I made a euterpe in
> the euterpe-proteus and asked tom to rename euterpe-proteus to
> euterpe-snapshot.
> Howver since he didn't want to mess up work in progress he just
> symbolically linked it to euterpe-snaphot. The proteus used by the
> euterpe build does NOT point at ../proteus since that is not the
> snapshot proteus but to /n/auspex/s23....
> I am still waiting for the go ahead from brian to restart the build
> from scratch proteus build which will probably be done somewhere else
> so as not to fill up /s41.

Glad someone knows what's going on!

Tim

From: Mark Hofmann [hopper@boreas]
Sent: Wednesday, November 02, 1994 11:14 PM
To: 'Tim B. Robinson'
Cc: 'lisar@nosferatu'; 'brianl@nosferatu'; 'geert@nosferatu'; 'hopper@nosferatu'; 'tom@nosferatu'; 'vant@nosferatu'; 'vo@nosferatu'
Subject: Re: forwarded message from Geert Rosseel

Tim B. Robinson writes:
> Lisa Robinson wrote (on Wed Nov 2):
> Its a long story .....
>
> I was building an proteus from scratch in
> /n/auspex/s41/euterpe-proteus/proteus
> but brianl needed to rerun in /u/chip so we stopped the s41 build and
> instead took a tar image of /u/chip so as not to hold up the snapshot
> - remember we discussed it. Tom put this on
> /n/auspex/s23/euterpe-proteus-cp.
>
> Then I needed some space to do the euterpe build so I made a euterpe in
> the euterpe-proteus and asked tom to rename euterpe-proteus to
> euterpe-snapshot.
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> symbolically linked it to euterpe-snaphot. The proteus used by the
> euterpe build does NOT point at ../proteus since that is not the
> snapshot proteus but to /n/auspex/s23....
> I am still waiting for the go ahead from brian to restart the build
> from scratch proteus build which will probably be done somewhere else
> so as not to fill up /s41.
>
> Glad someone knows what's going on!
> Tim

Would larger partitions (> 2gb) be a help here? Tim- have the sysadms gotten a definitive answer on this one? It seems to me that once we have 9Gb disks it will be terribly inefficient to be tied to 2Gb partitions.

-hopper

From: Geert Rosseel [geert@rhea]
Sent: Wednesday, November 02, 1994 11:24 PM
To: 'geert@rhea'
Subject: pager log, sender copy

```
page from geert to geert:
pageme gmake gards/geert_euterpe-iter.garout.lis start:Nov_02_19:10 end:
Nov_02_20:22 exit 0
```

.

From: tbr

Sent: Wednesday, November 02, 1994 11:36 PM

To: 'Mark Hofmann'

Cc: 'brianl@nosferatu'; 'geert@nosferatu'; 'hopper@nosferatu'; 'lisar@nosferatu'; 'tom@nosferatu'; 'vant@nosferatu'; 'vo@nosferatu'

Subject: Re: forwarded message from Geert Rosseel

Follow Up Flag: Follow up

Flag Status: Red

Mark Hofmann wrote (on Wed Nov 2):

> Tim B. Robinson writes:
> > Lisa Robinson wrote (on Wed Nov 2):
> > > Its a long story .....
> >
> > I was building an proteus from scratch in
> > /n/auspex/s41/euterpe-proteus/proteus
> > but brianl needed to rerun in /u/chip so we stopped the s41 build and
> > instead took a tar image of /u/chip so as not to hold up the snapshot
> > - remember we discussed it. Tom put this on
> > /n/auspex/s23/euterpe-proteus-cp.
> >
> > Then I needed some space to do the euterpe build so I made a euterpe in
> > the euterpe-proteus and asked tom to rename euterpe-proteus to
> > euterpe-snapshot.
> > Howver since he didn't want to mess up work in progress he just
> > symbolically linked it to euterpe-snaphot. The proteus used by the
> > euterpe build does NOT point at ../proteus since that is not the
> > snapshot proteus but to /n/auspex/s23....
> > I am still waiting for the go ahead from brian to restart the build
> > from scratch proteus build which will probably be done somewhere else
> > so as not to fill up /s41.
> >
> > Glad someone knows what's going on!
> > Tim
>
> Would larger partitions (> 2gb) be a help here? Tim- have the sysadms gotten a
> definitive answer on this one? It seems to me that once we have 9Gb disks
> it will be terribly inefficient to be tied to 2Gb partitions.

No, but as soon as we have the new disks in some experiments will be
done.

Tim

From: Mark Hofmann [hopper@boreas]

Sent: Wednesday, November 02, 1994 11:59 PM

To: 'Tim B. Robinson'

Subject: Re: forwarded message from Geert Rosseel

Tim B. Robinson writes:

> The only problem is if the O/S insists on counting bytes, then 2^31 = 2Gb is a limit. However, partitions are block-oriented things (where a block is usually 1k or 4k bytes) so, in theory, the O/S should be able to address at least 2Terabytes without a problem.

Well, the bsd file system supports 512B fragments, so I think that's the basic unit, but even so, it gives another 9 bits of address.

Which should hold us at least until Euterpe II!

-hopper

From: tbr
Sent: Thursday, November 03, 1994 12:01 AM
To: 'Mark Hofmann'
Subject: Re: forwarded message from Geert Rosseel
Follow Up Flag: Follow up
Flag Status: Red

Mark Hofmann wrote (on Wed Nov 2):

> Tim B. Robinson writes:
> > The only problem is if the O/S insists on counting bytes, then 2^31 = 2Gb
> > is a limit. However, partitions are block-oriented things (where a
> > block is usually 1k or 4k bytes) so, in theory, the O/S should be able
> > to address at least 2Terabytes without a problem.
>
> Well, the bsd file system supports 512B fragments, so I think that's
> the basic unit, but even so, it gives another 9 bits of address.
>
> Which should hold us at least until Euterpe II!

Yes. Actually, I think there used to be an issue with backup with big partitions. I'm not sure if that was because of 2GB tape capacity or because they used to use mirrored partitions, but now we use 5GB tapes so that limit should have gone up. As far as I know dump handles multivolume dumps OK anyway.

Tim

From: Buffalo Chip [chip@rhea]
Sent: Thursday, November 03, 1994 12:30 AM
To: 'geert@rhea'
Subject: pager log message

```
page from chip to geert:
Release euterpe/verilog/bsrc/lt BOM 67.0 initiated by woody completed @ Wed Nov 2 21:29:25
PST 1994 with exit status 0.. chip
```

From: Jay Tomlinson [woody@luckboy]
Sent: Thursday, November 03, 1994 11:28 AM
To: 'euterpe@luckboy'
Subject: IMMINENT Decision: instruction cache tag bit change

The current micro-arch doc defines the bits of the instruction cache tag as follows:

bit	meaning
7	Caching control, exception 3 if set
6	Detail access, exception 2 if set
5..2	ignored by hardware
1..0	Execution access, causes exception 1 if > privilege level

I propose changing the location of the Execution Access field to allow the hardware to use bit 0 as a valid bit (bit 0 of the data cache tag is the defined as the dirty-bit). This change would speed up the I-cache miss processing by allowing the hardware to invalidate the tag entry without having to write the entire entry. This change will also simplify the euterpe hardware. The tag array has a write-enable for this bit.

My proposal for the new bit definitions is:

bit	meaning
7	Caching control, exception 3 if set
6	Detail access, exception 2 if set
5..4	ignored by hardware
3..2	Execution access, causes exception 1 if > privilege level
1	ignored by hardware
0	valid

This change will become final at 11:59PM Monday, Nov 7, 1994.
Objections should be sent out immediately and can be reviewed Friday/Monday.

Jay

From: Patricia Mayer [pmayer@luckboy]
Sent: Thursday, November 03, 1994 12:05 PM
To: 'hestia@aphrodite'; 'tbr@aphrodite'
Cc: 'pmayer@aphrodite'; 'albers@aphrodite'; 'philip@aphrodite'
Subject: Re: prt review

> From tbr@aphrodite Sat Oct 29 17:53:44 1994
> Date: Sat, 29 Oct 1994 17:53:38 -0700
> From: tbr@aphrodite (Tim B. Robinson)
> To: hestia@aphrodite
> Cc: pmayer@aphrodite, albers@aphrodite, tbr@aphrodite,
> philip@aphrodite
> Subject: prt review
> Content-Length: 1798
>
>
> Notes from the main board prt review
>
> 1. All SMT components need pad dimensions checking. The PCAD report
> does not include this information. It will have to be checked on
> screen. Since glen built all these parts, pmayer will do the onscreen
> check so it's independent.
>
> Action: pmayer to check pad dimensions for all the SMT parts in this
> batch
DONE - Found a few problems. Used a PCAD Materials list from the Main PWB.
Does anybody need plots?
>
>
> 2. pmayer noted that PCAD requires an explicit upodate if a library
> part is changed. Since there have been so many changes it would be
> worth investigating if there is a way to re-read the entire library.
>
> Action: tbr to ask albers to check if we can do a global update. If
> not, pmayer will update components individually.
>
Dan did figure out a way to do this globally. THANKS!
>
> 3. It would be helpful for pmayer to receive the checkin notices for
> the library.
>
> Action: tbr to have tom add her to the distribution. (Done)
>
Receiving
>
> 4. p100_00005, p110_00028
> These parts do not have pin 1 distinguished by pad shape.
>
> Action: pmayer to correct.
>
Chopped pin one in parts:
p110_00004
p110_00005
p110_00006
p110_00006
p110_00008
p110_00013
p110_00017
p110_00019
p110_00021
p110_00028
p180_00004
p370_00004

Used my material list and chopped all pin ones that were in a semetrical footprint.
>
> 5. p110_00029
> There was confusion over the preferred vendor for this part. The
> database has National, but according to yves it's not in their data
> book.
>
> Action: philip to resolve preferred vendor.
>
>
> 6. p110_00031
> The hole size is too large and could alow the shouldered portion of
> the leads to drop right into the board. Hole size to be reduced 5
> mils. New padstack is
>
> pin 1 113
> pin 2 114
> pin 3 114
>
> Action: pmayer to correct.
>
Done - Is this part used on the Main PWB? Wasn't on my Material List
>
> 7. p140_00010
> Pin 2 needs to be pad type 114 (round pad).
>
> Action: pmayer to correct.
Done
>
> 8. p180_00004
> Some ground vias need position adjustment.
>
> Action: pmayer to correct.
Done
>
>
> 9. p210_00023, p210_00024
> Pin 1 needs silk screen polarity indicator. Pins are reversed in .prt
> file.
>
> Action: pmayer to correct.
Done
>
>
> Tbr had to leave the meeting at this point. Woody will post notes on
> on remaining issues.
>
> Tim
>
>
>
Another part issue that Philip mentioned was a fuducial mark for Caliope and Euterpe. ??

From: Gregg Kellogg [gregg@hts.microunity.com]
Sent: Thursday, November 03, 1994 12:14 PM
To: 'Brendan Eich'
Subject: Re: == gmake -k in /p/soft/stb/terp-src/stb failed, see /p/soft/stb/terp-src/,stb-log ==

It occured to me last night that I might have forgotten to check this file in.

That's a good idea about allocating a jmp_buf on the stack and pointing to it from one of the structures.

I prefer moving the error_label from mpeg_decoder to mpeg_unpacker.

The primary purpose of the special case in the default error handler is for documentation. I don't expect that the default error handler will actually be used for production, it's primary purpose is as a debug aide.

--
Gregg Kellogg
MicroUnity Systems Engineering, Inc.
255 Caspian Drive, Sunnyvale, Ca 94089-1015 gregg@microunity.com

From: Geert Rosseel [geert@ambiorix]
Sent: Thursday, November 03, 1994 1:24 PM
To: 'hardheads@ambiorix'
Subject: IMMINENT DECISION : change in pad-assignment

Hi,

Two decision were made related to power distribution on Calliope and Euterpe

1. Calliope

We will connect the SENSE pad to the sealring. Currently, it is hooked up to the M3 layer (VDDE) on the space transformer, but the corresponding pad on the die is not hooked up to VDDE. We will now connect the die-pad to the seal-ring (also VDDE) in order to create another VDDE pad and reduce IR drops during test.

2. Euterpe

We will change the power-pad asignment : currently we have VDDE on top and bottom and VSS on the sides.

At the top and bottom, every other VDDE pad will be changed to a VSS pad. We need the VSS connections to provide power to the DRAM drivers.

On the sides, spare pads used to be assigned to VSS. Now, every other pad will be VDDE. The reason is the same as for Calliope : reduce IR drop during test.

None of these changes should affect the Tab-frame or board design.
All VSS pads are always changed to VDDE pads on the space-transfromer.

Geert

From: Gregg Kellogg [gregg@hts.microunity.com]
Sent: Thursday, November 03, 1994 2:00 PM
To: 'Brendan Eich'
Cc: 'fur'
Subject: mpeg_unpack/decode issues

For Scott's benefit. My reply to your latest message appended at the bottom.

Gregg

On Nov 2, 10:46pm, Brendan Eich wrote:
> Subject: Re: == gmake -k in /p/soft/stb/terp-src/stb failed, see
/p/soft/
> Rather than check in ~gregg/stb/lib/mpeg/system/unpacker.h and restart
the
> build, I thought I'd better leave it to you to decide what's best.
> From
what
> is checked in, it seems every unpacker (audio and video) will need a
jmp_buf
> member, whether useful or not. The trouble is jmp_buf is big, and it
may not
> always be valid.
>
> I ran into these problems already in video error recovery, which is
> why mpeg_decoder_t has an error_label member (it is void * to avoid
including
> <setjmp.h> without really needing it).
>
> Only if the error_label is non-null will
> video.c:perform_error_recovery longjmp through it. The pointed-at
> jmp_buf is allocated on the stack
(only
> on those stacks that need it, rather than in every unpacker). Until
setjmp
> has been called, error_label is null. When control flows out of the
function
> in which setjmp was called, error_label is cleared, so no longjmp to a
stack
> variable that's been deallocated and possibly overwritten can occur
(lack of
> this was a bug I just fixed).
>
> We could move error_label from mpeg_decoder_t to mpeg_unpacker_t, and
change
> pat.c to point it at a local jmp_buf only after setjmp has returned 0.
>
> Or pat.c could use its own error callback instead of putting a special
case
> in the default callback, and this pat_error callback could longjmp
through a
> jmp_buf defined in the program structure, or mpeg_coroutine_t, or
someplace
> appropriate to the PSI decoders. I prefer this solution.
>
> /be
>
>-- End of excerpt from Brendan Eich

On Nov 3, 10:26am, Brendan Eich wrote:
> Subject: Re: == gmake -k in /p/soft/stb/terp-src/stb failed, see
/p/soft/s
> To minimize cache working sets, PSI error handling should go in its

> own callback, not in video's or audio's. Any documentary advantage to
making
> an all-in-one default callback now shouldn't expose PSI-specific data
> to unpacker.c later, after the PSI-specific code has been removed.
>
> That said, if we do agree to move error_label to mpeg_unpacker_t, then
> mpeg_decoder_t becomes even more "thin" and the thought of unifying
> the two (mpeg_system_decoder_t?) arises. The current separation has a
> small simplifying effect on unpacker.[ch], letting it focus on parsing
> and so on, but not worry about queue attaching, buffer and error label
> state, etc. There used to be more to do in decoder.c, so this effect
> is less now than before.
>
> More significant: should mpeg_acquire_pat and other PSI functions use
> mpeg_decoder_t? Their caller will presumably need to keep track of an
> UNCACHED queue buffer for PSI data. I.e., mpeg_acquire_pat and
> similar future PSI coroutine entry points all take an mpeg_decoder_t *
> as
argument,
> and use its error_label (or not) and local/appropriately-located
jmp_bufs
> in their own calback(s).
>
> If the reason for moving error_label to mpeg_unpacker_t is the same as
> the reason for having mpeg_decoder_t wrap mpeg_unpacker_t, and it
applies
> to the queue_buffer as well, then PSI decoders should use
mpeg_decoder_t.
>
> Whether to flatten unpacker and decoder is separable, and turns on how
> much source complexity results. The data structure sizes probably
> won't shrink by unification, and the decoder.c code is all init/free
> time and not in any long-term cache working set.
>
> /be
>
>-- End of excerpt from Brendan Eich

After looking the stuff over further, I'm inclined to agree with you that the PSI decode/error stuff is best handled in mpeg_decoder.

This also simplifies the DEMUX code.

Given that the PSI code sets up the error_label entry in mpeg_demux_t, it seems to me that there's no longer anything PSI specific about it: the error routine should simply longjmp through error_label on a hard-error when it's non-zero, but this code can now be moved into the mpeg_decode version of the error handler. The default error case in the mpeg_decode error handler should then do the appropriate function and call the unpacker's error code handler for more generic unpacker type things.

I still maintain that any real code should provide it's own error handler, leaving the the default for stand-alone test use.

--
Gregg Kellogg
MicroUnity Systems Engineering, Inc.
255 Caspian Drive, Sunnyvale, Ca 94089-1015 gregg@microunity.com

From: lisa
Sent: Thursday, November 03, 1994 3:26 PM
To: 'software-checkins-dist'
Subject: gnu-tools/sim/terp events.c

```
Update of /p/cvsroot/gnu-tools/sim/terp
In directory calliope:/N/auspex/root/s6/lisa/src/gnu-tools/sim/terp

Modified Files:
      events.c
Log Message:

do_exception() now takes an access type and, after encoding it, stores it in the access-
mode field of the exception status.
```

From: lisa
Sent: Thursday, November 03, 1994 3:28 PM
To: 'software-checkins-dist'
Subject: gnu-tools/sim/terp memory.h

```
Update of /p/cvsroot/gnu-tools/sim/terp
In directory calliope:/N/auspex/root/s6/lisa/src/gnu-tools/sim/terp

Modified Files:
      memory.h
Log Message:
- Fixed the length check in access_ptr and mem_ptr.
- Moved definition of atype_t from here into terp.h
- Translation macros/routines (e.g. lv_to_gv) now need the access_type.
- Pass the access type to do_exception().
```

From: lisa
Sent: Thursday, November 03, 1994 3:29 PM
To: 'software-checkins-dist'
Subject: gnu-tools/sim/terp terp.h

```
Update of /p/cvsroot/gnu-tools/sim/terp
In directory calliope:/N/auspex/root/s6/lisa/src/gnu-tools/sim/terp

Modified Files:
      terp.h
Log Message:

- Definition of atype_t moved into here (from memory.h).
- Modified declaration of do_exception() -- added access_type parameter.
```

From: lisa
Sent: Thursday, November 03, 1994 3:30 PM
To: 'software-checkins-dist'
Subject: gnu-tools/sim/terp decode.c execute.c v_mem.c

```
Update of /p/cvsroot/gnu-tools/sim/terp
In directory calliope:/N/auspex/root/s6/lisa/src/gnu-tools/sim/terp

Modified Files:
      decode.c execute.c v_mem.c
Log Message:

- Translation macros/routines (e.g. lv_to_gv) now need the access_type.
- Pass the access type to do_exception().
```

From: lisa
Sent: Thursday, November 03, 1994 3:32 PM
To: 'software-checkins-dist'
Subject: gnu-tools/sim/terp memory.c

```
Update of /p/cvsroot/gnu-tools/sim/terp
In directory calliope:/N/auspex/root/s6/lisa/src/gnu-tools/sim/terp

Modified Files:
      memory.c
Log Message:

- Put the real length of the tlb's in their access structures.
- Translation macros/routines (e.g. lv_to_gv) now need the access_type.
- Pass the access type to do_exception().
```

From: lisa
Sent: Thursday, November 03, 1994 3:33 PM
To: 'software-checkins-dist'
Subject: gnu-tools/sim/terp cerberus.c fp_support.c group.c hermes.c stbio.c

```
Update of /p/cvsroot/gnu-tools/sim/terp
In directory calliope:/N/auspex/root/s6/lisa/src/gnu-tools/sim/terp

Modified Files:
      cerberus.c fp_support.c group.c hermes.c stbio.c Log Message:

- Pass the access type to do_exception().
```

From: lisa
Sent: Thursday, November 03, 1994 3:33 PM
To: 'software-checkins-dist'
Subject: gnu-tools/sim/terp/calliope calliope.c

```
Update of /p/cvsroot/gnu-tools/sim/terp/calliope
In directory
calliope:/N/auspex/root/s6/lisa/src/gnu-tools/sim/terp/calliope

Modified Files:
      calliope.c
Log Message:

- Pass the access type to do_exception().
```

From: lisa
Sent: Thursday, November 03, 1994 5:37 PM
To: 'Dave Conroy'
Subject: Re: new terp

> I see that a new sun terp is available. I am hoping that I am
> accessing

> it prior to its being fully built because I get a core dump when I run
> it. I tried the dcache_func and dcache_sz_16k on it.

Sorry, I just got back from lunch and two meetings. Are you still having trouble? I ran it with no problems, so if it is still crashing on you, please send me the exact command line and path so I can try it.

lisa

From: andrew [andrew@charybdis]
Sent: Thursday, November 03, 1994 5:45 PM
To: 'Geert Rosseel'; 'hardheads@charybdis'
Subject: RE: IMMINENT DECISION : change in pad-assignment

Geert

So just to make sure I understand - On Calliope at WAFER SORT, the sense pad #52 that is currently a "no connect" needs to be connected to the Vdde power plane?

Andrew

From: Geert Rosseel on Thu, Nov 3, 1994 10:25 AM
Subject: IMMINENT DECISION : change in pad-assignment
To: hardheads

Hi,

Two decision were made related to power distribution on Calliope and Euterpe

1. Calliope

We will connect the SENSE pad to the sealring. Currently, it is hooked up to the M3 layer (VDDE) on the space transformer, but the corresponding pad on the die is not hooked up to VDDE. We will now connect the die-pad to the seal-ring (also VDDE) in order to create another VDDE pad and reduce IR drops during test.

2. Euterpe

We will change the power-pad asignment : currently we have VDDE on top and bottom and VSS on the sides.

At the top and bottom, every other VDDE pad will be changed to a VSS pad. We need the VSS connections to provide power to the DRAM drivers.

On the sides, spare pads used to be assigned to VSS. Now, every other pad will be VDDE. The reason is the same as for Calliope : reduce IR drop during test.

None of these changes should affect the Tab-frame or board design.
All VSS pads are always changed to VDDE pads on the space-transfromer.

Geert

From: geert (Geert Rosseel)
Sent: Thursday, November 03, 1994 7:15 PM
To: 'bill'; 'geert'; 'vo'; 'wingard'
Subject: MicroModule

Hi,

MicroModule will be here on Monday morning at 9:30 a.m.. They offer "silocon-on-substrate" packages (kind of a space-transformer without the airbridge). We will probable need something like this to get the power into our foundry Euterpe.

If you want to come to this meeting, please do so.

Geert

From: lisa
Sent: Thursday, November 03, 1994 8:30 PM
To: 'software-checkins-dist'
Subject: gnu-tools/sim/terp memory.h memory.c

```
Update of /p/cvsroot/gnu-tools/sim/terp
In directory calliope:/N/auspex/root/s6/lisa/src/gnu-tools/sim/terp

Modified Files:
      memory.h memory.c
Log Message:

Changed the nb_buf field from an array of bytes into a "real" hexlet, so that it has
better alignment.
```

From: lisa
Sent: Thursday, November 03, 1994 8:34 PM
To: 'gmo'
Subject: terp coredump on sun

When I removed a field from the nb-access structure, the position change of the nb_buf array (within the structure) ran into alignment problems. (The bus error was from an unaligned access.) I just checked-in a fix (memory.h, memory.c).

lisa

From: tbr
Sent: Thursday, November 03, 1994 10:27 PM
To: 'Geert Rosseel'
Subject: IMMINENT DECISION : change in pad-assignment
Follow Up Flag: Follow up
Flag Status: Red

Geert Rosseel wrote (on Thu Nov 3):

Hi,

Two decision were made related to power distribution on Calliope and Euterpe

1. Calliope

We will connect the SENSE pad to the sealring. Currently, it is hooked up to the M3 layer (VDDE) on the space transformer, but the corresponding pad on the die is not hooked up to VDDE. We will now connect the die-pad to the seal-ring (also VDDE) in order to create another VDDE pad and reduce IR drops during test.

What masks need to be remade to accomplish this?

Tim

From: Tim B. Robinson [tbr@aphrodite]
Sent: Thursday, November 03, 1994 10:27 PM
To: 'Geert Rosseel'
Subject: IMMINENT DECISION : change in pad-assignment

Geert Rosseel wrote (on Thu Nov 3):

Hi,

Two decision were made related to power distribution on Calliope and Euterpe

1. Calliope

We will connect the SENSE pad to the sealring. Currently, it is hooked up to the M3 layer (VDDE) on the space transformer, but the corresponding pad on the die is not hooked up to VDDE. We will now connect the die-pad to the seal-ring (also VDDE) in order to create another VDDE pad and reduce IR drops during test.

What masks need to be remade to accomplish this?

Tim

From: Mark Hofmann [hopper@boreas]
Sent: Thursday, November 03, 1994 10:57 PM
To: 'Lisa Robinson'
Cc: 'Tom Vo'; 'Thomas Laidig'; 'Kurt Wampler'; 'vant@boreas'; 'Tim B. Robinson'; 'Geert Rosseel'
Subject: Re: proteus release

Lisa Robinson writes:

I need to do two proteus releases, one in libsrc and one in misc.
Unless I hear otherwise, I'll do them at 10.00pm tonight.

Lisa R.

These are the current gards runs:

vo ghidra /dev/ttyp2 (v7.115) (godzilla/7576 174), start Thu 11/3 9:28, 2 licenses
geert ghidra /dev/tty (v7.115) (godzilla/7576 1083), start Thu 11/3 17:51
vo ghidra /dev/tty (v7.115) (godzilla/7576 1142), start Thu 11/3 18:07, 2 licenses
tom narcissus /dev/tty (v7.115) (godzilla/7576 665), start Thu 11/3 18:08
tom marathon /dev/tty (v7.115) (godzilla/7576 361), start Thu 11/3 18:08

and this is the chipq:

ID	Target Directory	Machine(pid)	Who	Stat
1	1671 proteus/gards	tomato(27296)	tom	5:28
2	1672 proteus/exlax/elibsrc	tomato(27314)	tom	wait
3	1687 proteus/compass/layouts	thoas(10969)	wampler	wait
4	1691 tools/src/twinvia	thoas(21049)	wampler	wait
5	1692 proteus/gardswarts/protowart	thoas(25218)	wampler	wait

Okay. I was hoping to get a snapshot done so that Dave could start up a DRC
and Kurt could start up a fracture of the euterpe baseplate. Tvo spotted
and error in pl_euh which Kurt and Rich have patched. I believe that fix
has been checked in and released but has not yet shown up in /u/chip. I _think_
the stuff in the chipq should handle that. Do I have that right?

At any rate, I don't think your release should affect being able to create
a snapshot. I think the DRc/fracture shouold be done from the snapshot area.
I just wanted to let people know that Euterpe baseplate status.

-hopper

From: tbr
Sent: Thursday, November 03, 1994 11:18 PM
To: 'Mark Hofmann'
Cc: 'Geert Rosseel'; 'Lisa Robinson'; 'Thomas Laidig'; 'vant@boreas'; 'Tom Vo'; 'Kurt Wampler'
Subject: Re: proteus release
Follow Up Flag: Follow up
Flag Status: Red

Mark Hofmann wrote (on Thu Nov 3):

> Lisa Robinson writes:
>
> > I need to do two proteus releases, one in libsrc and one in misc.
> > Unless I hear otherwise, I'll do them at 10.00pm tonight.
> >
> > Lisa R.
>
> These are the current gards runs:
>
> vo ghidra /dev/ttyp2 (v7.115) (godzilla/7576 174), start Thu 11/3 9:28, 2 licenses
> geert ghidra /dev/tty (v7.115) (godzilla/7576 1083), start Thu 11/3 17:51
> vo ghidra /dev/tty (v7.115) (godzilla/7576 1142), start Thu 11/3 18:07, 2 licenses
> tom narcissus /dev/tty (v7.115) (godzilla/7576 665), start Thu 11/3 18:08
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3	1687 proteus/compass/layouts	thoas(10969)	wampler	wait
4	1691 tools/src/twinvia	thoas(21049)	wampler	wait
5	1692 proteus/gardswarts/protowart	thoas(25218)	wampler	wait

> Okay. I was hoping to get a snapshot done so that Dave could start up a DRC
> and Kurt could start up a fracture of the euterpe baseplate. Tvo spotted
> and error in pl_euh which Kurt and Rich have patched. I believe that fix
> has been checked in and released but has not yet shown up in /u/chip. I _think_
> the stuff in the chipq should handle that. Do I have that right?
>
> At any rate, I don't think your release should affect being able to create
> a snapshot. I think the DRc/fracture shouold be done from the snapshot area.
> I just wanted to let people know that Euterpe baseplate status.

I think after the gardswart builds, we need an update-chip in
proteus/ged/pl to get the verilog representation regenerated
from the schematic (which includes the body that came from the
gards netlist that came from the verilog in proteus/verilog/src/pl).

Whew! I which this linkage was automatic.

From: Kurt Wampler [wampler@thoas]
Sent: Friday, November 04, 1994 12:05 AM
To: 'hopper@boreas'; 'tbr@aphrodite'
Cc: 'geert@boreas'; 'lisar@rhodan'; 'tom@boreas'; 'vant@boreas'; 'vo@boreas'
Subject: Re: proteus release

hopper wrote:

Okay. I was hoping to get a snapshot done so that Dave could start up a DRC and Kurt could start up a fracture of the euterpe baseplate. Tvo spotted and error in pl_euh which Kurt and Rich have patched. I believe that fix has been checked in and released but has not yet shown up in /u/chip. I _think_ the stuff in the chipq should handle that. Do I have that right?

At any rate, I don't think your release should affect being able to create a snapshot. I think the DRc/fracture shouold be done from the snapshot area.
I just wanted to let people know that Euterpe baseplate status.

tbr replied:

I think after the gardswart builds, we need an update-chip in proteus/ged/pl to get the verilog representation regenerated from the schematic (which includes the body that came from the gards netlist that came from the verilog in proteus/verilog/src/pl).

wampler replies:

The release of pl_euh & pl_euh_sofa completed, and the fixed layouts have propagated to /u/chip/proteus/compass/layouts. I also just completed a ".0" releasebom in proteus/gardswarts -- only the pl_euh gardswart rebuilt itself -- the other two were up-to-date. Everything looks stable in wart land.

- Kurt

From: Mark Hofmann [hopper@cyclops]

Sent: Friday, November 04, 1994 7:12 AM

To: 'Tom Laidig'

Cc: 'tbr@aphrodite'; 'hopper@boreas'; 'geert@boreas'; 'lisar@rhodan'; 'tom@boreas'; 'vant@boreas'; 'vo@boreas'; 'wampler@thoas'

Subject: Re: proteus release

Tom Laidig writes:

> OK, as per later discussions, I did a getbom in
> euterpe-snapshot/euterpe/proteus/compass. This is now complete. Is
> there a reason not to start up the getbom in
> euterpe-snapshot/euterpe/proteus now?

I don't think so. Fire it off...

-hopper

From: Mark Hofmann [hopper@boreas]
Sent: Friday, November 04, 1994 9:40 AM
To: 'Brendan Eich'
Cc: 'tbr@boreas'
Subject: Re: Challenge / Irix 5.x Memory addressability question

Brendan Eich writes:

> The Power Challenge is TFP, or Twin Peaks (or T4?) based. TFP is a fast SGI reimplementation of the MIPS R4000 non-FP architecture with new and claimed-to-be-better floating point. I don't know the prices for these beasts, but jsw might know.

Okay. Thanks for the info.

-hopper

From: tbr
Sent: Friday, November 04, 1994 12:44 PM
To: 'Mark Hofmann'
Cc: 'geert@boreas'; 'lisar@rhodan'; 'tom@boreas'; 'vant@boreas'; 'vo@boreas'; 'Kurt Wampler'
Subject: Re: proteus release
Follow Up Flag: Follow up
Flag Status: Red

Mark Hofmann wrote (on Fri Nov 4):

> Kurt Wampler writes:
> The release of pl_euh & pl_euh_sofa completed, and the fixed layouts have propagated to /u/chip/proteus/compass/layouts. I also just completed a ".0" releasebom in proteus/gardswarts -- only the pl_euh gardswart rebuilt itself -- the other two were up-to-date. Everything looks stable in wart land.
>
> Okay. Good.
> The chipq is empty, as well.
> Let's proceed with the snap shot and then launch DRC and fracture of the baseplate from there.

I ran the update-chip to get the verilog abstraction rebuilt.

Last night I found some inconsistencies in the proteus snapshot under the snapshot euterpe (missing stuff in verilog/libsrc).

I think we need to pull the latest BOM into that version of proteus and do the incremental build to be sure we have everything current.

Comments?

Tim

From: Tim B. Robinson [tbr@aphrodite]
Sent: Friday, November 04, 1994 12:44 PM
To: 'Mark Hofmann'
Cc: 'geert@boreas'; 'lisar@rhodan'; 'tom@boreas'; 'vant@boreas'; 'vo@boreas'; 'Kurt Wampler'
Subject: Re: proteus release

Mark Hofmann wrote (on Fri Nov 4):

> Kurt Wampler writes:
> The release of pl_euh & pl_euh_sofa completed, and the fixed layouts have propagated to /u/chip/proteus/compass/layouts. I also just completed a ".0" releasebom in proteus/gardswarts -- only the pl_euh gardswart rebuilt itself -- the other two were up-to-date. Everything looks stable in wart land.
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Last night I found some inconsistencies in the proteus snapshot under the snapshot euterpe (missing stuff in verilog/libsrc).

I think we need to pull the latest BOM into that version of proteus and do the incremental build to be sure we have everything current.

Comments?

Tim

From: craig
Sent: Friday, November 04, 1994 12:55 PM
To: 'craig@echidna'; 'wayne@echidna'
Cc: 'euterpe'
Subject: Re: bring-up meeting of November 2

Wayne wrote:

> Ask Craig if an abort invalidates the byte in transit
> or the entire packet. (Wayne)

Craig, I was given an action item to verify a question with you. When an Abort is issued, is the byte only invalidated, or is the entire packet be invalidated. In addition, is there a specific time response for the sending device to respond to the Abort (retransmit) before another device grabs the bus, or is it first come first serve here?

Thanks,

Wayne

Craig responds:

An abort, in which the SD line is driven low for 12-22 cycles, causes the entire transaction to be aborted. This is more extensive than the choices you gave me (byte in transit or the entire packet); the entire transaction is aborted, no matter whether the current packet is a request or response. [see page TSA 14-Apr-94 page 294.]

After an abort, the next transaction may begin immediately upon seeing SD high for one cycle (which ends the abort) [Page 294]. A device which has lost the arbitration of a collision, or has suffered the occurrence of a transaction abort, may retry the transmission immediately [Page 296]. All other devices must wait one additional cycle before transmitting, ensuring that all devices which have collided perform their operations before another set of devices arbitrate again [Page 296]. It may be noted that other devices which were arbitrating for access at the same time as the device which initiated the aborted transaction get the opportunity to respond at the same time as the previous initiator; provided that the contents of the requests are the same as the previous transaction, the result of the arbitration on the retransmitted transaction should be the same as the previous, aborted, transaction.

The above mechanism might appear to ensure that an transaction initator, one having begin a transaction can simply assume that it need not worry about another transaction grabbing the bus away. However, this is not the case. Firstly, a transaction abort may occur before arbitration has been completed on the local Cerberus bus, and the initator may lose arbitration on the retransmission. The initator must be prepared to accept the loss of arbitration, even when the loss implies that it must respond as a target of the transaction. Secondly, gateways and repeaters may need to apparently override the local fairness mechanism to ensure global fairness or to avoid system deadlock, and in such cases, may begin a retransmission immediately upon the end of an abort even though it wasn't among the set of initiators of the previous transaction. [see page 307]

Also, a device which requires a delay after an aborted transaction may force the delay bit after the first byte of the immediately

following transaction, and may cause the first byte to be re-transmitted by aborting the following transaction after requesting a suitable delay [page 297].

Regards,
Craig

From: Craig Hansen [craig@mnemosyne]
Sent: Friday, November 04, 1994 1:55 PM
To: 'craig@echidna'; 'wayne@echidna'
Cc: 'euterpe@mnemosyne'
Subject: Re: bring-up meeting of November 2

Wayne wrote:

> Ask Craig if an abort invalidates the byte in transit
> or the entire packet. (Wayne)

Craig, I was given an action item to verify a question with you. When an Abort is issued, is the byte only invalidated, or is the entire packet be invalidated. In addition, is there a specific time response for the sending device to respond to the Abort (retransmit) before another device grabs the bus, or is it first come first serve here?

Thanks,

Wayne

Craig responds:

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Also, a device which requires a delay after an aborted transaction may force the delay bit after the first byte of the immediately

following transaction, and may cause the first byte to be re-transmitted by aborting the following transaction after requesting a suitable delay [page 297].

Regards,
Craig

From: Tom Laidig [tom@clio]

Sent: Friday, November 04, 1994 2:54 PM

To: 'Tim B. Robinson'

Cc: 'hopper@boreas'; 'geert@boreas'; 'lisar@rhodan'; 'tom@boreas'; 'vant@boreas'; 'vo@boreas'; 'wampler@thoas'

Subject: Re: proteus release

Tim B. Robinson writes:

|
|Mark Hofmann wrote (on Fri Nov 4):
|
| Kurt Wampler writes:
| The release of pl_euh & pl_euh_sofa completed, and the fixed layouts have
| propagated to /u/chip/proteus/compass/layouts. I also just completed
| a ".0" releasebom in proteus/gardswarts -- only the pl_euh gardswart
| rebuilt itself -- the other two were up-to-date. Everything looks stable
| in wart land.
|
| Okay. Good.
| The chipq is empty, as well.
| Let's proceed with the snap shot and then launch DRC and fracture of the
| baseplate from there.
|
|I ran the update-chip to get the verilog abstraction rebuilt.
|
|Last night I found some inconsistencies in the proteus snapshot under
|the snapshot euterpe (missing stuff in verilog/libsrc).
|
|I think we need to pull the latest BOM into that version of proteus
|and do the incremental build to be sure we have everything current.

OK, as per later discussions, I did a getbom in
euterpe-snapshot/euterpe/proteus/compass. This is now complete. Is
there a reason not to start up the getbom in
euterpe-snapshot/euterpe/proteus now?

--
Tom L

From: Tom Laidig [tom@clio]

Sent: Friday, November 04, 1994 3:17 PM

To: 'Mark Hofmann'

Cc: 'tbr@aphrodite'; 'hopper@boreas'; 'geert@boreas'; 'lisar@rhodan'; 'tom@boreas'; 'vant@boreas'; 'vo@boreas'; 'wampler@thoas'

Subject: Re: proteus release

Mark Hofmann writes:

> Tom Laidig writes:
> > OK, as per later discussions, I did a getbom in
> > euterpe-snapshot/euterpe/proteus/compass. This is now complete. Is
> > there a reason not to start up the getbom in
> > euterpe-snapshot/euterpe/proteus now?
>
> I don't think so. Fire it off...

It's happening now as I type...

--

Tom L

From: Geert Rosseel [geert@ambiorix]
Sent: Friday, November 04, 1994 4:49 PM
To: 'tbr@ambiorix'; 'vanthof@ambiorix'
Subject: init_inst

I am confused about the init_inst directive for topt.

I build apower.tab.local file for cp that contains all instances with a init_inst directive. I though that topt was going to change the power-levels except on the I/O blocks. However, topt seems to treat all cells as forced and does not change the power-level on any cell.

All data is in

/n/ghidra/s3/geert/euterpe/verilog/bsrc/cp

Geert

From: vant [vanthof@hestia]
Sent: Friday, November 04, 1994 4:52 PM
To: 'Geert Rosseel'
Cc: 'tbr@ambiorix'; 'vanthof@ambiorix'
Subject: Re: init_inst

Geert Rosseel writes:
>
>
> I am confused about the init_inst directive for topt.
>
> I build apower.tab.local file for cp that contains all instances with
>a init_inst directive. I though that topt was going to change the
>power-levels except on the I/O blocks. However, topt seems to treat all
>cells as forced and does not change the power-level on any cell.
>
> All data is in
>
> /n/ghidra/s3/geert/euterpe/verilog/bsrc/cp
>
> Geert

Within the cp block that is true, but when the cp is included in the top level, topt will allow changes to happen because the init_inst in the power.tab.local is not propogated to the top level.

when power optimizing a block, the init_inst and inst directives act identical, but init_inst is not propogated to the top level power.tab.local, while inst is.

Does this help?
Dave

--
Dave Van't Hof vanthof@microunity.com MicroUnity Systems Engineering, Inc.
"What rolls down stairs, alone or in pairs, rolls over the neighbor's dog?

What's great for a snack and fits on your back? It's log, log, log!"
LOG from BLAMMO! (tm) All kids love Log! #incluce <std_disclaim.h>

.

From: Tom Laidig [tom@clio]

Sent: Friday, November 04, 1994 6:00 PM

To: 'Tom Laidig'

Cc: 'hopper@cyclops'; 'tbr@aphrodite'; 'hopper@boreas'; 'geert@boreas'; 'lisar@rhodan'; 'tom@boreas'; 'vant@boreas'; 'vo@boreas'; 'wampler@thoas'

Subject: Re: proteus release

Tom Laidig writes:
|
|Mark Hofmann writes:
||
||Tom Laidig writes:
|| OK, as per later discussions, I did a getbom in
|| euterpe-snapshot/euterpe/proteus/compass. This is now complete. Is
|| there a reason not to start up the getbom in
|| euterpe-snapshot/euterpe/proteus now?
||
||I don't think so. Fire it off...
|
|It's happening now as I type...

OK, 'tis done.

—
Tom L

From: lisa
Sent: Friday, November 04, 1994 6:19 PM
To: 'software-checkins-dist'
Subject: gnu-tools/sim/terp memory.c

```
Update of /p/cvsroot/gnu-tools/sim/terp
In directory calliope:/N/auspex/root/s6/lisa/src/gnu-tools/sim/terp

Modified Files:
      memory.c
Log Message:

Implemented the queue for nb-accesses which are serialized (tlb's, etc.); they are doled
out one-at-a-time, fifo-style.
```

From: vant [vanthof@hestia]
Sent: Friday, November 04, 1994 6:26 PM
To: 'Mark Hofmann'; 'Geert Rosseel'; 'Lisa Robinson'; 'Tim B. Robinson'; 'Tom Vo'
Cc: 'Dave Van't Hof'; 'Thomas Laidig'
Subject: euterpe drc's

I've started the euterpe drc runs:

upper drc's on medusa
lower drc's on cyclops and trex

I have both processors busy on medusa, so if that machine could be treated as drc only, ie; no chip related functions, the drc's will finish much faster.
If cyclops could be limited to only one chip related function so as not to slow down the dracula job, that would also help a lot.

Some conversion stats:

upper drc's: 90% of the checks were converted to vlsimm
lower drc's: 69% of the checks were converted to vslimm

If we see a 2x improvement (which we should), then the uppers should finish in about 1.5-2 days and the first phase of the lower should finish in about 3.5-4 days, hopefully less.

Is it possible to start up an lvs as well?

Thanks,
Dave

--
Dave Van't Hof vanthof@microunity.com MicroUnity Systems Engineering, Inc.
"What rolls down stairs, alone or in pairs, rolls over the neighbor's dog?

What's great for a snack and fits on your back? It's log, log, log!"
LOG from BLAMMO! (tm) All kids love Log! #incluce <std_disclaim.h>

From: Buffalo Chip [chip@rhea]
Sent: Friday, November 04, 1994 6:54 PM
To: 'geert@rhea'
Subject: pager log message

```
page from chip to geert:
Release euterpe/verilog/bsrc/es BOM 65.0 initiated by dickson completed @ Fri Nov 4
15:51:48 PST 1994 with exit status 1.. chip

all ports busy
all ports busy
all ports busy
all ports busy
all ports busy
all ports busy
all ports busy
all ports busy
all ports busy
all ports busy
all ports busy
```

From: lisa
Sent: Friday, November 04, 1994 7:09 PM
To: 'software-checkins-dist'
Subject: gnu-tools/sim/terp decode.c

```
Update of /p/cvsroot/gnu-tools/sim/terp
In directory calliope:/N/auspex/root/s6/lisa/src/gnu-tools/sim/terp

Modified Files:
      decode.c
Log Message:

For I_BI insns, only set rdest if opcode is blinki (bi's were tracking r0 as a
destination).
```

From: lisa
Sent: Friday, November 04, 1994 7:12 PM
To: 'Derek Iverson'
Cc: 'gmo'
Subject: Re: terp errantly commits to reg 0 on a `bi'

I just checked-in a fix. (It wasn't actually touching register 0, it was just *saying* that it did.)

lisa

From: B. P. Wong [bpw@frodo]
Sent: Friday, November 04, 1994 7:31 PM
To: 'mnemo@frodo'
Cc: 'bpw@frodo'
Subject: IMMINENT DECISION: PCI driver

IMMINENT DECISION:

We have decided to use the IDT FCT buffer P.N. IDT74FCT164245T as the PCI driver. We will then use the current euterpe I/O buffer as the mnemo I/O buffer even for the PCI bus. The PCI bus will be buffered by the IDT74FCT164245T.

Background info:

The PCI bus according to the PCI electrical specification rev 2.0 is a very hostile environment. The 3 most notorious specs for 5V signalling are listed below:

	PCI Rev 2.0	IDT spec
o AC Ioh (at Vout = 3.1V)	= -142 mA	-180 mA
o AC Iol (at Vout = 0.71)	= 206 mA	200 mA
o Overshoot tolerance	= 11V for 11nS	7V for 20nS

The IDT part is the only part that comes close to meeting all the nasty PCI specs.

It will be a major undertaking to meet the AC current specs and the overshoot spec if we are to design a PCI compliant buffer on chip, not to mention the large di/dt noise we have to content with. A logical solution is to use an external buffer to do the 3 to 5 Volt level translation and at the same time buffer mnemo from the hostile PCI environment.

Date for Final DECISION is set at Wednesday, Nov 9, 1994 at 8:00am if there is no objection to this proposal.

bpw

From: Buffalo Chip [chip@ghidra]
Sent: Friday, November 04, 1994 8:15 PM
To: 'geert@ghidra'
Subject: output of euterpe/verilog/bsrc/cp/.checkoutrc

The output from euterpe/verilog/bsrc/cp/.checkoutrc is 176k, so it is not included in this mail message. Instead, check the file

/n/tmp/chiplog/geert.ghidra.3569.euterpe-verilog-bsrc-cp

(which is accessible from all machines). This file will disappear in about 5 days.

By the way, the exit status returned by .checkoutrc was 0.

From: Tom Vo [vo@merope]
Sent: Friday, November 04, 1994 8:26 PM
To: 'Lisa Robinson'
Cc: 'Mark Hofmann'; 'Tim B. Robinson'; 'Geert Rosseel'; 'Dave Van't Hof'; 'Kurt Wampler'
Subject: protection in s41

My rebuild of euterpe in s41 failed because of permission problem .

```
cp: /n/auspex/s41/euterpe-snapshot/euterpe/compass/baseplate/knobmap.ly:
Not owner
cp:
/n/auspex/s41/euterpe-snapshot/euterpe/compass/baseplate/knobmaptext.ly:
Not owner
cp:
/n/auspex/s41/euterpe-snapshot/euterpe/compass/baseplate/knobstraps.ly:
Not owner
cp:
/n/auspex/s41/euterpe-snapshot/euterpe/compass/baseplate/knobstraps_drive.
ly: Not owner
cp:
/n/auspex/s41/euterpe-snapshot/euterpe/compass/baseplate/knobstraps_straps
.ly: Not owner
cp: /n/auspex/s41/euterpe-snapshot/euterpe/compass/baseplate/clockbias.ly:
Not owner
cp:
/n/auspex/s41/euterpe-snapshot/euterpe/compass/baseplate/cgclockbias.ly:
Not owner
gmake[1]: *** [cgclockbias.ly] Error 1
gmake[1]: Leaving directory
`/N/auspex/root/s41/euterpe-snapshot/euterpe/clockbias'
```

But when I check the files attributes , it's group writable .

????

tvo

From: Lisa Robinson [lisar@nosferatu]
Sent: Friday, November 04, 1994 8:32 PM
To: 'Tom Vo'; 'doi@nosferatu'; 'tom@nosferatu'
Cc: 'Geert Rosseel'; 'Mark Hofmann'; 'Tim B. Robinson'; 'Dave Van't Hof'; 'Kurt Wampler'
Subject: protection in s41

Tom Vo wrote (on Fri Nov 4):

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```
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/n/auspex/s41/euterpe-snapshot/euterpe/compass/baseplate/knobmap.ly: Not owner
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/n/auspex/s41/euterpe-snapshot/euterpe/compass/baseplate/knobmaptext.ly:
Not owner
   cp:
/n/auspex/s41/euterpe-snapshot/euterpe/compass/baseplate/knobstraps.ly:
Not owner
   cp:
/n/auspex/s41/euterpe-snapshot/euterpe/compass/baseplate/knobstraps_drive.
ly: Not owner
   cp:
/n/auspex/s41/euterpe-snapshot/euterpe/compass/baseplate/knobstraps_straps
.ly: Not owner
   cp:
/n/auspex/s41/euterpe-snapshot/euterpe/compass/baseplate/clockbias.ly: Not owner
   cp:
/n/auspex/s41/euterpe-snapshot/euterpe/compass/baseplate/cgclockbias.ly:
Not owner
   gmake[1]: *** [cgclockbias.ly] Error 1
   gmake[1]: Leaving directory
`/N/auspex/root/s41/euterpe-snapshot/euterpe/clockbias'
```

But when I check the files attributes , it's group writable .

????

tvo

I'm confused too.

What group are you?

```
lisar@rhodan /s3/euterpe/verilog/bsrc 463 % ls -ls /n/auspex/s41/euterpe-
snapshot/euterpe/compass/baseplate/knobmap.ly
   4 -rw-rw-r--  1 lisar        3437 Nov  4 17:03
/n/auspex/s41/euterpe-snapshot/euterpe/compass/baseplate/knobmap.ly
lisar@rhodan /s3/euterpe/verilog/bsrc 464 % ls -lsd /n/auspex/s41/euterpe-
snapshot/euterpe/compass/baseplate
  34 drwxrwxr-x  2 lisar       34304 Nov  4 17:28
/n/auspex/s41/euterpe-snapshot/euterpe/compass/baseplate
lisar@rhodan /s3/euterpe/verilog/bsrc 465 % ls -lsdd /n/auspex/s41/euterpe-
snapshot/euterpe/compass/baseplate
  34 drwxrwxr-x  2 lisar       34304 Nov  4 17:28
/n/auspex/s41/euterpe-snapshot/euterpe/compass/baseplate
lisar@rhodan /s3/euterpe/verilog/bsrc 466 % ls -lsg /n/auspex/s41/euterpe-
snapshot/euterpe/compass/baseplate
^C
lisar@rhodan /s3/euterpe/verilog/bsrc 467 % ls -lsgd /n/auspex/s41/euterpe-
snapshot/euterpe/compass/baseplate
  34 drwxrwxr-x  2 lisar    cad         34304 Nov  4 17:28
```

/n/auspex/s41/euterpe-snapshot/euterpe/compass/baseplate

Can any one help?

LIsa R.

From: vant [vanthof@hestia]
Sent: Friday, November 04, 1994 8:34 PM
To: 'Lisa Robinson'
Cc: 'vo@merope'; 'doi@nosferatu'; 'tom@nosferatu'; 'geert@merope'; 'hopper@merope'; 'tbr@merope'; 'vanthof@merope'; 'wampler@merope'
Subject: Re: protection in s41

Lisa Robinson writes:

```
>   But when I check the files attributes , it's group writable .
>
>   ????
>
>   tvo
>
>I'm confused too.
>
>What group are you?
```

Tom is in the CAD group, so it should be writable by him.

```
>
>
>lisar@rhodan /s3/euterpe/verilog/bsrc 463 % ls -ls
/n/auspex/s41/euterpe-snapshot/euterpe/compass/baseplate/knobmap.ly
>   4 -rw-rw-r--  1 lisar        3437 Nov  4 17:03
/n/auspex/s41/euterpe-snapshot/euterpe/compass/baseplate/knobmap.ly
>lisar@rhodan /s3/euterpe/verilog/bsrc 464 % ls -lsd
/n/auspex/s41/euterpe-snapshot/euterpe/compass/baseplate
>  34 drwxrwxr-x  2 lisar       34304 Nov  4 17:28
/n/auspex/s41/euterpe-snapshot/euterpe/compass/baseplate
>lisar@rhodan /s3/euterpe/verilog/bsrc 465 % ls -lsdd
/n/auspex/s41/euterpe-snapshot/euterpe/compass/baseplate
>  34 drwxrwxr-x  2 lisar       34304 Nov  4 17:28
/n/auspex/s41/euterpe-snapshot/euterpe/compass/baseplate
>lisar@rhodan /s3/euterpe/verilog/bsrc 466 % ls -lsg
/n/auspex/s41/euterpe-snapshot/euterpe/compass/baseplate
>^C
>lisar@rhodan /s3/euterpe/verilog/bsrc 467 % ls -lsgd
/n/auspex/s41/euterpe-snapshot/euterpe/compass/baseplate
>  34 drwxrwxr-x  2 lisar    cad         34304 Nov  4 17:28
/n/auspex/s41/euterpe-snapshot/euterpe/compass/baseplate
>
>Can any one help?
>
>LIsa R.
>
```

I managed to cd over there and create a file with no problems.

Tom, were you doing this as chip? Chip is not in the CAD group that I can tell.

Dave

--
Dave Van't Hof vanthof@microunity.com MicroUnity Systems Engineering, Inc.
"What rolls down stairs, alone or in pairs, rolls over the neighbor's dog?

What's great for a snack and fits on your back? It's log, log, log!"
LOG from BLAMMO! (tm) All kids love Log! #incluce <std_disclaim.h>

From: Tom Vo [vo@merope]
Sent: Friday, November 04, 1994 8:36 PM
To: 'vant'
Cc: 'lisar@nosferatu'; 'doi@nosferatu'; 'tom@nosferatu'; 'geert@merope'; 'hopper@merope'; 'tbr@merope'; 'vanthof@merope'; 'wampler@merope'
Subject: Re: protection in s41

```
>
>I managed to cd over there and create a file with no problems.
>
>Tom, were you doing this as chip?  Chip is not in the CAD group that I
can
>tell.

I was doing this as vo .  The build ran just fine elsewhere rebuilding baseplate and gards
model .  Log file is in /n/auspex/s41/euterpe-snapshot/euterpe/makerrs.vo .

tvo
```

From: Tom Laidig [tom@clio]
Sent: Friday, November 04, 1994 8:40 PM
To: 'Lisa Robinson'
Cc: 'vo@merope'; 'doi@nosferatu'; 'tom@nosferatu'; 'geert@merope'; 'hopper@merope'; 'tbr@merope'; 'vanthof@merope'; 'wampler@merope'
Subject: Re: protection in s41

```
Lisa Robinson writes:
|
|
|Tom Vo wrote (on Fri Nov  4):
|
|
|   My  rebuild of euterpe in s41 failed because of permission problem .
|
|   cp:
/n/auspex/s41/euterpe-snapshot/euterpe/compass/baseplate/knobmap.ly: Not owner
|   cp:
/n/auspex/s41/euterpe-snapshot/euterpe/compass/baseplate/knobmaptext.ly:
Not owner
|   cp:
/n/auspex/s41/euterpe-snapshot/euterpe/compass/baseplate/knobstraps.ly:
Not owner
|   cp:
/n/auspex/s41/euterpe-snapshot/euterpe/compass/baseplate/knobstraps_drive.
ly: Not owner
|   cp:
/n/auspex/s41/euterpe-snapshot/euterpe/compass/baseplate/knobstraps_straps
.ly: Not owner
|   cp:
/n/auspex/s41/euterpe-snapshot/euterpe/compass/baseplate/clockbias.ly: Not owner
|   cp:
/n/auspex/s41/euterpe-snapshot/euterpe/compass/baseplate/cgclockbias.ly:
Not owner
|   gmake[1]: *** [cgclockbias.ly] Error 1
|   gmake[1]: Leaving directory
`/N/auspex/root/s41/euterpe-snapshot/euterpe/clockbias'
|
|   But when I check the files attributes , it's group writable .
|
|   ????
|
|   tvo
|
|I'm confused too.
|
|What group are you?
|
|
|lisar@rhodan /s3/euterpe/verilog/bsrc 463 % ls -ls
/n/auspex/s41/euterpe-snapshot/euterpe/compass/baseplate/knobmap.ly
|   4 -rw-rw-r--  1 lisar        3437 Nov  4 17:03
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/n/auspex/s41/euterpe-snapshot/euterpe/compass/baseplate
|  34 drwxrwxr-x  2 lisar       34304 Nov  4 17:28
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|  34 drwxrwxr-x  2 lisar       34304 Nov  4 17:28
/n/auspex/s41/euterpe-snapshot/euterpe/compass/baseplate
|lisar@rhodan /s3/euterpe/verilog/bsrc 466 % ls -lsg
/n/auspex/s41/euterpe-snapshot/euterpe/compass/baseplate
|^C
```

```
|lisar@rhodan /s3/euterpe/verilog/bsrc 467 % ls -lsgd
/n/auspex/s41/euterpe-snapshot/euterpe/compass/baseplate
|  34 drwxrwxr-x  2 lisar    cad         34304 Nov  4 17:28
/n/auspex/s41/euterpe-snapshot/euterpe/compass/baseplate
|
```

Note from the dates above that the actual copying worked. Is this perchance another example of the infamous `cp -p'? You've all heard me belly-ache about this before -- well, here's yet another reason not to do this unless it's strictly necessary: when you do a `cp -p' to an existing file, the actual copying succeeds if you have write permission on the file, but then the backdating fails unless you really are the owner of the file.

Solutions:

don't use cp -p

do an rm -f of the old file before copying

--
Tom L

From: tbr
Sent: Saturday, November 05, 1994 1:44 AM
To: 'Tom Laidig'
Cc: 'geert@boreas'; 'hopper@boreas'; 'lisar@rhodan'; 'tom@boreas'; 'vant@boreas'; 'vo@boreas'; 'wampler@thoas'
Subject: Re: proteus release
Follow Up Flag: Follow up
Flag Status: Red

Tom Laidig wrote (on Fri Nov 4):

Tim B. Robinson writes:
|
|
|Mark Hofmann wrote (on Fri Nov 4):
|
| Kurt Wampler writes:
| The release of pl_euh & pl_euh_sofa completed, and the fixed layouts have
| propagated to /u/chip/proteus/compass/layouts. I also just completed
| a ".0" releasebom in proteus/gardswarts -- only the pl_euh gardswart
| rebuilt itself -- the other two were up-to-date. Everything looks stable
| in wart land.
|
| Okay. Good.
| The chipq is empty, as well.
| Let's proceed with the snap shot and then launch DRC and fracture of the
| baseplate from there.
|
|I ran the update-chip to get the verilog abstraction rebuilt.
|
|Last night I found some inconsistencties in the proteus snapshot under
|the snapshot euterpe (missing stuff in verilog/libsrc).
|
|I think we need to pull the latest BOM into that version of proteus
|and do the incremental build to be sure we have everything current.

OK, as per later discussions, I did a getbom in
euterpe-snapshot/euterpe/proteus/compass. This is now complete. Is
there a reason not to start up the getbom in
euterpe-snapshot/euterpe/proteus now?

No reason. However, given I've been offline so long, did this get
done. A cvs status right now says it's out of date again:

File: BOM Status: Needs Checkout

Version: 5.521 Fri Nov 4 12:16:34 1994
RCS Version: 5.527 /p/cvsroot/proteus/BOM,v
Sticky Tag: (none)
Sticky Date: (none)
Sticky Options: (none)

.

From: tbr
Sent: Saturday, November 05, 1994 1:58 AM
To: 'vant'
Cc: 'Geert Rosseel'; 'Mark Hofmann'; 'Lisa Robinson'; 'Thomas Laidig'; 'Dave Van't Hof'; 'Tom Vo'
Subject: euterpe drc's
Follow Up Flag: Follow up
Flag Status: Red

vant wrote (on Fri Nov 4):

I've started the euterpe drc runs:

upper drc's on medusa
lower drc's on cyclops and trex

I have both processors busy on medusa, so if that machine could be treated as drc only, ie; no chip related functions, the drc's will finish much faster. If cyclops could be limited to only one chip related function so as not to slow down the dracula job, that would also help a lot.

That should be the default unless someone explicitly promotes a second job with -noconflict.

Some conversion stats:

upper drc's: 90% of the checks were converted to vlsimm
lower drc's: 69% of the checks were converted to vslimm

If we see a 2x improvement (which we should), then the uppers should finish in about 1.5-2 days and the first phase of the lower should finish in about 3.5-4 days, hopefully less.

Is it possible to start up an lvs as well?

From: Tim B. Robinson [tbr@aphrodite]
Sent: Saturday, November 05, 1994 1:58 AM
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Cc: 'Geert Rosseel'; 'Mark Hofmann'; 'Lisa Robinson'; 'Thomas Laidig'; 'Dave Van't Hof'; 'Tom Vo'
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Is it possible to start up an lvs as well?

From: Tim B. Robinson [tbr@aphrodite]
Sent: Saturday, November 05, 1994 2:04 AM
To: 'B. P. Wong'
Cc: 'bpw@frodo'; 'mnemo@frodo'
Subject: IMMINENT DECISION: PCI driver

B. P. Wong wrote (on Fri Nov 4):

> IMMINENT DECISION:
>
> We have decided to use the IDT FCT buffer P.N. IDT74FCT164245T as the PCI driver. We will then use the current euterpe I/O buffer as the mnemo I/O buffer even for the PCI bus. The PCI bus will be buffered by the IDT74FCT164245T.
>
> Background info:
>
> The PCI bus according to the PCI electrical specification rev 2.0 is a very hostile environment. The 3 most notorious specs for 5V signalling are listed below:

	PCI Rev 2.0	IDT spec
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> It will be a major undertaking to meet the AC current specs and the overshoot spec if we are to design a PCI compliant buffer on chip, not to mention the large di/dt noise we have to content with. A logical solution is to use an external buffer to do the 3 to 5 Volt level translation and at the same time buffer mnemo from the hostile PCI environment.
>
> Date for Final DECISION is set at Wednesday, Nov 9, 1994 at 8:00am if there is no objection to this proposal.

How many of these components will be required? I assume we may need several to handle control signals that need to be bi-directional with independent controls.

Tim

From: Tim B. Robinson [tbr@aphrodite]
Sent: Saturday, November 05, 1994 2:19 AM
To: 'Kurt Wampler'
Cc: 'geert@boreas'; 'hopper@boreas'; 'lisar@rhodan'; 'tom@boreas'; 'tom@clio'; 'vant@boreas'; 'vo@boreas'
Subject: Re: proteus release

Kurt Wampler wrote (on Fri Nov 4):

> Tim writes:
> ---
> >No reason. However, given I've been offline so long, did this get
> >done. A cvs status right now says it's out of date again:
> >
> >File: BOM Status: Needs Checkout
> >
> > Version: 5.521 Fri Nov 4 12:16:34 1994
> > RCS Version: 5.527 /p/cvsroot/proteus/BOM,v
> > Sticky Tag: (none)
> > Sticky Date: (none)
> > Sticky Options: (none)
>
> A cvs log on proteus/BOM indicates that all changes since 5.521 have
> been updates to the "mb" block, with the exception of the single "-"
that
> I just added to the clockbias Makefile.rules. If "mb" isn't used in
> Euterpe, (is it a Mnemo block?) then there should be no need for another
> getbom, I think.

mb is indeed mnemo only.

Tim

From: tbr
Sent: Saturday, November 05, 1994 2:27 AM
To: 'tom'
Cc: 'geert'; 'hopper'
Subject: permisions problem
Follow Up Flag: Follow up
Flag Status: Red

I just tried to fire off a make of the snapshot proteus following the getbom. It died immediately because of a permission problem trying to update ged/mb/mb.lib. I restarted it as chip and it has got past there. Is everything in that tree owned by chip? We have the euterpe snapshot set up to be group writeable by cad so people can work there without having to su to chip. Since we don't expect too frequent changes to proteus it should be no problem having to su, so long as everything is consistently owned by chip.

Tim

From: Tim B. Robinson [tbr@aphrodite]
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To: 'tom@aphrodite'
Cc: 'geert@aphrodite'; 'hopper@aphrodite'
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Tim

From: Tim B. Robinson [tbr@aphrodite]
Sent: Saturday, November 05, 1994 11:05 AM
To: 'brianl@aphrodite'
Cc: 'hopper@aphrodite'; 'geert@aphrodite'; 'lisar@aphrodite'
Subject: snapshot problem

After tom updated the BOM in the (s23) snapshot proteus, I started a top level make to bring everything up to date. It decided it had to remake leafgen becasue of a change which seens only to affect hr cells. As a result it had to re-run timing for those cells.

I noticed the following in the log output:

```
ld.so: warning: /usr/lib/libc.so.1.6.1 has older revision than expected 8
ld.so: warning: /usr/lib/libc.so.1.6.1 has older revision than expected 8
ld.so: warning: /usr/lib/libc.so.1.6.1 has older revision than expected 8
        1.4 real         0.0 user         0.1 sys
/bin/nawk: can't open mlmux5df2s.mt0
 source line number 30
/bin/nawk: can't open mlmux5df2s.mt0
 source line number 17
/bin/nawk: can't open mlmux5df2s.mt0
 source line number 17
/bin/nawk: can't open mlmux5df2s.mt0
 source line number 17
mv: mlmux5df2s.mt0: Cannot access: No such file or directory ../tools/simulate-time error:
mlmux5df2s.scr failed
../tools/simulate-time: moving mlmux5df2s.tim to mlmux5df2s.tim.bad

and many similar reports.

Then a little later:

Making mltime/mlmux4df6s.tim
deal: end merope stdout
deal: begin merope stderr (child 3274, cmd 119, exit 0) ...
ld.so: warning: /usr/lib/libc.so.1.6 has older revision than expected 8
ld.so: warning: /usr/lib/libc.so.1.6 has older revision than expected 8
rewind: [28] No space left on device
logical unit 7, named '/tmp/tmp.7_21811'
Command terminated abnormally.
       84.2 real        63.5 user         5.8 sys

Here's another example:

ld.so: warning: /usr/lib/libc.so.1.6.1 has older revision than expected 8
        1.4 real         0.0 user         0.1 sys
/bin/nawk: can't open mlmuxen7dh12s.mt0
 source line number 30
/bin/nawk: can't open mlmuxen7dh12s.mt0
 source line number 17
/bin/nawk: can't open mlmuxen7dh12s.mt0
 source line number 17
/bin/nawk: can't open mlmuxen7dh12s.mt0
 source line number 17
mv: mlmuxen7dh12s.mt0: Cannot access: No such file or directory ../tools/simulate-time
error: mlmuxen7dh12s.scr failed
../tools/simulate-time: moving mlmuxen7dh12s.tim to mlmuxen7dh12s.tim.bad
deal: end mercury stderr (child 12089)

Now, none of these seem to have stopped the make. What's going wrong here? Is this the reason we always seem to have a few bad timing numbers lying around?
```

The full log is to be found in
/n/auspex/s41/euterpe-snapshot/euterpe/proteus/makerrs

Tim

From: Tom Vo [vo@merope]
Sent: Saturday, November 05, 1994 12:42 PM
To: 'Mark Hofmann'; 'Dave Van't Hof'; 'Thomas Laidig'; 'Kurt Wampler'; 'Lisa Robinson'; 'Tim B. Robinson'; 'Geert Rosseel'
Subject: proteus snapshot stale

Where are we getting the snapshot proteus these days ?
We're still having problem with the gtlb .

The one that euterpe snapshot references looks stale :

```
-rwxr-xr-x  1 chip      3560421 Nov  4 10:36
/n/auspex/s23/euterpe-proteus-cp/proteus/compass/layouts/gtlb.ly
-rw-rw-r--  1 chip       139543 Sep 23 21:12
/n/auspex/s23/euterpe-proteus-cp/proteus/compass/dcell/gtlb.ly

-rwxr-xr-x  1 chip      3560421 Oct 31 15:31
/u/chip/proteus/compass/layouts/gtlb.ly
-rw-r--r--  1 chip       139944 Nov  3 12:42
/u/chip/proteus/compass/dcell/gtlb.ly
```

Either the rebuild in the snapshot proteus did not take , or we did not copy all the files we need .

I'm out for the morning . I'll check back in the afternoon .

tvo

From: Geert Rosseel [geert@ambiorix]
Sent: Saturday, November 05, 1994 1:03 PM
To: 'tbr@ambiorix'
Subject: euterpe snapshot

Hi Tim,

I am not sure what needs to be dpne at the topelevel in the snapshot.
Please go ahaed and update whatever you think needs it.

P.S. : Did mouss corner you already with his revived version of
the XDB for euterpe II ? It is interesting for the datapath
implementation, but control will be though.

Geert

From: tbr
Sent: Saturday, November 05, 1994 1:24 PM
To: 'Geert Rosseel'
Subject: euterpe snapshot
Follow Up Flag: Follow up
Flag Status: Red

Geert Rosseel wrote (on Sat Nov 5):

Hi Tim,

I am not sure what needs to be dpne at the topelevel in the snapshot. Please go ahaed and update whatever you think needs it.

P.S. : Did mouss corner you already with his revived version of the XDB for euterpe II ? It is interesting for the datapath implementation, but control will be though.

I spent almost the whole day in a re-ed session. Best not discussed in email . . .

Tim

From: Tim B. Robinson [tbr@aphrodite]
Sent: Saturday, November 05, 1994 1:24 PM
To: 'Geert Rosseel'
Subject: euterpe snapshot

Geert Rosseel wrote (on Sat Nov 5):

> Hi Tim,
>
> I am not sure what needs to be dpne at the topelevel in the snapshot.
> Please go ahaed and update whatever you think needs it.
>
> P.S. : Did mouss corner you already with his revived version of
> the XDB for euterpe II ? It is interesting for the datapath
> implementation, but control will be though.

I spent almost the whole day in a re-ed session. Best not discussed in email . . .

Tim

From: Geert Rosseel [geert@ambiorix]
Sent: Saturday, November 05, 1994 5:39 PM
To: 'wampler@ambiorix'
Cc: 'hopper@ambiorix'; 'tbr@ambiorix'
Subject: Help on euterpe ?

Hi Kurt,

Do you have any free cycles to help on top-level Euterpe routing ? Currently, a lot of people are helping out on sub-block placement & routing and I am working on the toplevel place and route. I could use help there and I'de like to split the task in two where one person works mostly on placement and another takes on the routing task.

Since you are much more familiar with the routing strategies and different parameters, I thought I could work further on the placement and you could help on routing.

Thank's

Geert

From: Tom Vo [vo@merope]
Sent: Saturday, November 05, 1994 5:49 PM
To: 'Tim B. Robinson'
Cc: 'geert@merope'; 'hopper@merope'; 'lisar@merope'; 'tom@merope'; 'vanthof@merope'; 'wampler@merope'
Subject: Re: proteus snapshot stale

```
Tim B. Robinson wrote ....
>
>
>
>
>Tom Vo wrote (on Sat Nov  5):
>
>
>   Where are we getting the snapshot proteus these days ?
>   We're still having problem with the gtlb .
>
>   The one that euterpe snapshot references looks stale :
>
>   -rwxr-xr-x  1 chip      3560421 Nov  4 10:36
/n/auspex/s23/euterpe-proteus-cp/proteus/compass/layouts/gtlb.ly
>   -rw-rw-r--  1 chip       139543 Sep 23 21:12
/n/auspex/s23/euterpe-proteus-cp/proteus/compass/dcell/gtlb.ly
>
>   -rwxr-xr-x  1 chip      3560421 Oct 31 15:31
/u/chip/proteus/compass/layouts/gtlb.ly
>   -rw-r--r--  1 chip       139944 Nov  3 12:42
/u/chip/proteus/compass/dcell/gtlb.ly
>
>
>I'm somewhat confused here.  The euterpe snapshot is referencing the
>snapshot proteus on s23.  According to you're ls the layout in the
>snapshot looks newer than the one in /u/chip, but cmp thinks they are
>identical.  I assume this is because the date in the snapshot reflects
>when the getbom ws done by tom yesterday.  As for the dcell, it may
>well not have been remade yet becasue the make has not got that far.
>Are we actually dependent on the dcell at this stage?
>
>Tim
>


We are .  The dcell for the custom block is really the real layout after it's been
processed by vlsimm to remove details immaterial to the baseplate build and GARDS model
generation .

tvo
```

From: Kurt Wampler [wampler@thoas]
Sent: Saturday, November 05, 1994 5:56 PM
To: 'geert@ambiorix'
Cc: 'hopper@ambiorix'; 'tbr@ambiorix'
Subject: Re: Help on euterpe ?

Geert writes:

> Do you have any free cycles to help on top-level Euterpe routing ?
>Currently, a lot of people are helping out on sub-block placement &
routing
>and I am working on the toplevel place and route. I could use help
>there and I'de like to split the task in two where one person works
>mostly on placement and another takes on the routing task.
>
> Since you are much more familiar with the routing strategies and
different
>parameters, I thought I could work further on the placement and you
>could
help
>on routing.

Yes, I can help. At the moment I'm trying to fix an obstruction abstraction inaccuracy that Brian has exposed, but the rest of my "to do" list can timeshare with routing work. Of course, if I have problems with a route, it may be necessary to adjust the placement sometimes...

When you have the time, give me a few more of the details and I'll get started.

- Kurt

From: Mark Hofmann [hopper@boreas]
Sent: Saturday, November 05, 1994 6:16 PM
To: 'Tom Vo'
Cc: 'vant@boreas'; 'tbr@boreas'; 'geert@boreas'; 'lisar@boreas'; 'tom@boreas'; 'wampler@boreas'
Subject: Re: Top level Makefile

Tom Vo writes:
I'm still waiting for the snapshot proteus to get updated .
When that's done , I'll start the euterpe rebuild .
When that's done , you can launch your DRC and fracture .

Okay, thanks.
I think I understand the order of events now.

-hopper

From: Tim B. Robinson [tbr@gamorra]
Sent: Saturday, November 05, 1994 7:23 PM
To: 'Tom Vo'
Cc: 'geert@boreas'; 'Mark Hofmann'; 'lisar@boreas'; 'tom@boreas'; 'vant@boreas'; 'wampler@boreas'
Subject: Re: Top level Makefile

Tom Vo wrote (on Sat Nov 5):

> Mark Hofmann wrote ....
> >
> >Tom Vo writes:
> > Mark Hofmann wrote ....
> > >I guess none of these things should affect the DRcs or fracture runs.
> > >Is this correct?
> > >
> > >-hopper
> > >
> > Quite the contrary . The baseplate build referenced data in the proteus
> > tree .
> > If there're inconsistency there , we'll get garbarge for a baseplate .
> > >
> > The drc jobs that vant started yesterday , and the 2 baseplate rebuilds
> > I made should be discarded . For some reason , I thought the proteus
> > snapshot was OK .
> > >
> > tvo
> > >
> >Okay. It turns out the DRCs died anyway. What is the current status? Can the
> >DRCs and fracture runs be restarted yet?
> >
> >-thanks,
> > hopper
> >

I'm still waiting for the snapshot proteus to get updated .
When that's done , I'll start the euterpe rebuild .
When that's done , you can launch your DRC and fracture .

According to brianl, the timing run decided to run everything, so if the 40hr number I've heard is correct it wont be through that till sometime tomorrow.

Tim

From: Tim B. Robinson [tbr@gamorra]
Sent: Saturday, November 05, 1994 7:29 PM
To: 'Tom Vo'
Cc: 'geert@boreas'; 'Mark Hofmann'; 'lisar@boreas'; 'tom@boreas'; 'vant@boreas'; 'wampler@boreas'
Subject: Re: Top level Makefile

Tom Vo wrote (on Sat Nov 5):

> I'm still waiting for the snapshot proteus to get updated .
> When that's done , I'll start the euterpe rebuild .
> When that's done , you can launch your DRC and fracture .

The first make just completed (exit 1). This was expected because of the disk full and license problems. Brianl has cleaned up the bogus timing files that wer created and I have restarted the make.
Hopefully only about 10% of them should need running on this pass.

I'll page if I get it to complete successfully.

Tim

From: Geert Rosseel [geert@ghidra]
Sent: Saturday, November 05, 1994 7:48 PM
To: 'tbr@ghidra'
Subject: euterpe/verilog/bsrc/pimlib.pl

Hi Tim,

euterpe/verilog/bsrc/pimlib.pl contains this :

```
/^\s*(\S+)\s+(\S+)\s+(\S+)\s*(.*)/      && do {
    printf ("%s%s\t %g\t %g\t %s\n",
        $inst, $1, $2 + $baserow, $3 + $basecol,
        (($4 && (substr($4,0,1) ne "#"))? $inst.$4 : $4));
```

in the shiftpim_v subroutine

Thi sdoes not work because of the $inst.$4 : $4

Usually, in the pim files that I see, $4 is someting like <1934 and is an alignment mark for pimpif. Adding the $inst does not work .

Do you remember whay that was added. Are there cases where this is necessary but I haven't seen yet.

Geert

From: tbr
Sent: Saturday, November 05, 1994 8:23 PM
To: 'Geert Rosseel'
Cc: 'hopper'
Subject: euterpe/verilog/bsrc/pimlib.pl
Follow Up Flag: Follow up
Flag Status: Red

Geert Rosseel wrote (on Sat Nov 5):

Hi Tim,

euterpe/verilog/bsrc/pimlib.pl contains this :

```
/^\s*(\S+)\s+(\S+)\s+(\S+)\s*(.*)/     && do {
    printf ("%s%s\t %g\t %g\t %s\n",
        $inst, $1, $2 + $baserow, $3 + $basecol,
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Do you remember whay that was added. Are there cases where this is necessary but I haven't seen yet.

I saw the mail's going by from hopper, but I have no idea what it's for.

I think he was working with dickson. Best thing would be to get mark to patch up the shiftpim to be compatible with whatever new stuff is allowed in .pim files.

Tim

From: Tim B. Robinson [tbr@gamorra]
Sent: Saturday, November 05, 1994 8:23 PM
To: 'Geert Rosseel'
Cc: 'hopper@gamorra'
Subject: euterpe/verilog/bsrc/pimlib.pl

Geert Rosseel wrote (on Sat Nov 5):

Hi Tim,

euterpe/verilog/bsrc/pimlib.pl contains this :

```
                /^\s*(\S+)\s+(\S+)\s+(\S+)\s*(.*)/       && do {
                        printf ("%s%s\t %g\t %g\t %s\n",
                                $inst, $1, $2 + $baserow, $3 + $basecol,
                                (($4 && (substr($4,0,1) ne "#"))?
$inst.$4 : $4));
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in the shiftpim_v subroutine

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I saw the mail's going by from hopper, but I have no idea what it's for.

I think he was working with dickson. Best thing would be to get mark to patch up the shiftpim to be compatible with whatever new stuff is allowed in .pim files.

Tim

From: Mark Hofmann [hopper@boreas]
Sent: Saturday, November 05, 1994 8:27 PM
To: 'Tim B. Robinson'
Cc: 'geert@ghidra'; 'hopper@gamorra'
Subject: Re: euterpe/verilog/bsrc/pimlib.pl

```
Tim B. Robinson writes:
   Geert Rosseel wrote (on Sat Nov  5):
       Hi Tim,

       euterpe/verilog/bsrc/pimlib.pl contains this :

                      /^\s*(\S+)\s+(\S+)\s+(\S+)\s*(.*)/      && do {
                              printf ("%s%s\t %g\t %g\t %s\n",
                                      $inst, $1, $2 + $baserow, $3 + $basecol,
                                      (($4 && (substr($4,0,1) ne "#"))?
$inst.$4 : $4));

       in the shiftpim_v subroutine

       Thi sdoes not work because of the  $inst.$4 : $4

       Usually, in the pim files that I see, $4 is someting like <1934 and is an
       alignment mark for pimpif. Adding the $inst does not work .

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       but I haven't seen yet.

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   for.

   I think he was working with dickson.  Best thing would be to get mark
   to patch up the shiftpim to be compatible with whatever new stuff is
   allowed in .pim files.

   Tim

I didn't work on this file, but I think I understand what's happened.
the alignment marks of the type that Geert is seeing "<1934" are fairly new. They are
really "bounds" marks which constrain a cell placement.
At any rate, I will attempt to patch pimlib.pl

-hopper
```

From: Mark Hofmann [hopper@boreas]

Sent: Saturday, November 05, 1994 8:28 PM

To: 'Tim B. Robinson'

Subject: Re: Top level Makefile

Tim B. Robinson writes:

> Tom Vo wrote (on Sat Nov 5):
>
> > I'm still waiting for the snapshot proteus to get updated .
> > When that's done , I'll start the euterpe rebuild .
> > When that's done , you can launch your DRC and fracture .
>
> The first make just completed (exit 1). This was expected because of the disk full and license problems. Brianl has cleaned up the bogus timing files that wer created and I have restarted the make.
> Hopefully only about 10% of them should need running on this pass.
>
> I'll page if I get it to complete successfully.
> Tim

Let me know too, please!

-thanks,
hopper

From: tbr
Sent: Saturday, November 05, 1994 8:38 PM
To: 'Mark Hofmann'
Cc: 'geert@ghidra'; 'hopper@gamorra'
Subject: Re: euterpe/verilog/bsrc/pimlib.pl
Follow Up Flag: Follow up
Flag Status: Red

Mark Hofmann wrote (on Sat Nov 5):

> Tim B. Robinson writes:
> > Geert Rosseel wrote (on Sat Nov 5):
> > > Hi Tim,
> > >
> > > euterpe/verilog/bsrc/pimlib.pl contains this :
> > >
> > > ```
> > > /^\s*(\S+)\s+(\S+)\s+(\S+)\s*(.*)/     && do {
> > >     printf ("%s%s\t %g\t %g\t %s\n",
> > >         $inst, $1, $2 + $baserow, $3 + $basecol,
> > >         (($4 && (substr($4,0,1) ne "#"))? $inst.$4 : $4));
> > > ```
> > >
> > > in the shiftpim_v subroutine
> > >
> > > Thi sdoes not work because of the $inst.$4 : $4
> > >
> > > Usually, in the pim files that I see, $4 is someting like <1934 and is an
> > > alignment mark for pimpif. Adding the $inst does not work .
> > >
> > > Do you remember whay that was added. Are there cases where this is necessary
> > > but I haven't seen yet.
> >
> > I saw the mail's going by from hopper, but I have no idea what it's
> > for.
> >
> > I think he was working with dickson. Best thing would be to get mark
> > to patch up the shiftpim to be compatible with whatever new stuff is
> > allowed in .pim files.
> >
> > Tim
>
> I didn't work on this file, but I think I understand what's happened.
> the alignment marks of the type that Geert is seeing "<1934" are fairly
> new. They are really "bounds" marks which constrain a cell placement.
> At any rate, I will attempt to patch pimlib.pl

Sorry, I meant that you had been working on pim/pif to add
functionality that this feil probably does not track.

Tim

From: tbr
Sent: Saturday, November 05, 1994 8:39 PM
To: 'Mark Hofmann'
Subject: Re: Top level Makefile
Follow Up Flag: Follow up
Flag Status: Red

Mark Hofmann wrote (on Sat Nov 5):

> Tim B. Robinson writes:
> > Tom Vo wrote (on Sat Nov 5):
> > > I'm still waiting for the snapshot proteus to get updated .
> > > When that's done , I'll start the euterpe rebuild .
> > > When that's done , you can launch your DRC and fracture .
> >
> > The first make just completed (exit 1). This was expected because of
> > the disk full and license problems. Brianl has cleaned up the bogus
> > timing files that wer created and I have restarted the make.
> > Hopefully only about 10% of them should need running on this pass.
> >
> > I'll page if I get it to complete successfully.
> > Tim
>
> Let me know too, please!

I'm worried brian may have removed the wrong files. The restart is
now remaking the leaf cells, but it did not re-run any lobe timing
runs when I restarted it.

Tim

From: Mark Hofmann [hopper@boreas]
Sent: Saturday, November 05, 1994 8:40 PM
To: 'Tim B. Robinson'
Subject: Re: euterpe/verilog/bsrc/pimlib.pl

Tim B. Robinson writes:
> Sorry, I meant that you had been working on pim/pif to add
> functionality that this feil probably does not track.

No problem. Now I have to sharpen up my Perl skills!

-hopper

From: tbr
Sent: Saturday, November 05, 1994 8:41 PM
To: 'Mark Hofmann'
Subject: Re: euterpe/verilog/bsrc/pimlib.pl
Follow Up Flag: Follow up
Flag Status: Red

Mark Hofmann wrote (on Sat Nov 5):

> Tim B. Robinson writes:
> Sorry, I meant that you had been working on pim/pif to add
> functionality that this feil probably does not track.
>
> No problem. Now I have to sharpen up my Perl skills!

Good for the soul.

From: tbr
Sent: Saturday, November 05, 1994 9:01 PM
To: 'Mark Hofmann'
Cc: 'brianl'
Subject: Re: Top level Makefile
Follow Up Flag: Follow up
Flag Status: Red

Mark Hofmann wrote (on Sat Nov 5):

> Tim B. Robinson writes:
> Could be, but if he actually removed 60 odd files, those ones would
> have to run since there would be no timestamp. Nothing re-ran.
>
> Hmm. Okay, I'm not sure what's going on.
>
> Do you have any idea how long the leafmold run is?
>
> I think a full run takes a good fraction of a day (depending on how many
> gards licenses are available). Hopefully, though, only the 25-or-so failing
> cells will be attempted which ought go pretty quick.

No, ot's worse than that. For reasons brian could not fully explain,
the timing characterixation was run for all lobes. Order 60 failed
and he said he removed the results. Now it appears that it is
remaking all the leafcell layouts:
tbr@gamorra /n/auspex/s41/euterpe-snapshot/euterpe/proteus/leafgen/leafmold 417 % wc -l *.list.*

```
  309 tmp.list.hepatu
  310 tmp.list.marathon
  310 tmp.list.merope
  310 tmp.list.psyche
  309 tmp.list.thalia
 1548 total
```

There is also another problem that brian was going to look at. Since
the leafgen Makefile does not actually update the master timing file
when the run completes, the top level Makefile will charge on leaving
the timing cata to be copied over by hand. I suggested he put
something in the top level makefile to do that copy. That would not
affect a release at the leafgen level whcih would stioll need manual
intervention to change the timing file.

Thinking about it some more, the correct solution would be to have
another targer in the leafgen Makefile which makes the tmp file and
then copies it over. The top level proteus Makefile would ask for
that targer, but the leafgen .checkoutrc would still ask for the
target that does not do the copy.

Tim

From: Mark Hofmann [hopper@boreas]
Sent: Saturday, November 05, 1994 9:04 PM
To: 'Tim B. Robinson'
Cc: 'brianl@gamorra'
Subject: Re: Top level Makefile

Tim B. Robinson writes:

> No, it's worse than that. For reasons brian could not fully explain,
> the timing characterixation was run for all lobes. Order 60 failed
> and he said he removed the results. Now it appears that it is
> remaking all the leafcell layouts:
> tbr@gamorra /n/auspex/s41/euterpe-snapshot/euterpe/proteus/leafgen/leafmold 417 % wc -l *.list.*
>
> 309 tmp.list.hepatu
> 310 tmp.list.marathon
> 310 tmp.list.merope
> 310 tmp.list.psyche
> 309 tmp.list.thalia
> 1548 total

Oops... But there don't appear to be too many leafmold running presently

> There is also another problem that brian was going to look at. Since
> the leafgen Makefile does not actually update the master timing file
> when the run completes, the top level Makefile will charge on leaving
> the timing cata to be copied over by hand. I suggested he put
> something in the top level makefile to do that copy. That would not
> affect a release at the leafgen level whcih would stioll need manual
> intervention to change the timing file.
>
> Thinking about it some more, the correct solution would be to have
> another targer in the leafgen Makefile which makes the tmp file and
> then copies it over. The top level proteus Makefile would ask for
> that targer, but the leafgen .checkoutrc would still ask for the
> target that does not do the copy.

Yes, that sounds like the right approach.

> Tim

-hopper

.

From: tbr
Sent: Saturday, November 05, 1994 9:26 PM
To: 'Tom Laidig'
Cc: 'hopper'; 'brinal'
Subject: Re: pager log message
Follow Up Flag: Follow up
Flag Status: Red

Tom Laidig wrote (on Sat Nov 5):

> Tim B. Robinson writes:
> |
> |page from tbr to tom:
> |trouble with proteus snapshot update 338 4152. tbr
>
> I've just scanned a couple email messages, and am cleaning the junk out
> of merope:/usr/tmp. What else should I be doing?

Perhaps you could do some poking in the snapshot to assess the damage.
Here's the history. I started up a top level Make in the s23/proteus.
For whatever reason, it decided to re-run all the lobe timing.
There were 2 problems, merope:/tmp full which according to brianl
causes jobs to die, but with spice returning a success error code.
Second, there was a problem with mercury (I think) not being able to
get a spice license for some reason. That caused another bunch of
things to die, but without creating results (according to brian).
So, brian said he was removeing around 60 bogus outputs files from the
jobs that went to merope, and he then took the 2 bad machines off the
deal list. The run died when deal finally finished with exit1.

I then restarted the Make, expecting it to re-run the missing cases,
but instead it went on to make the leafcell layouts and as far as I
can see did not try to re-run any timing. Of course then I ran into
the merope problem with the leafmold runs dying there, so we now
possibley have another bunch of bad stuff.

Since the timing did not re-run I'm worred brian removed files in the
wrong place. If you could take a look through the makerrs in
/n/auspex/s41/euterpe-snapshot/euterpe/proteus you will see the
history. (The current run is being appended.) Please see if you can
tell if the results of the dying jobs did indeed get removed, and if
so, why the new run did not remake them.

One possibly relevant fact is that between the runs I discovered we
did not have the latest top level Makefilee in the proteus snapshot
so I updated and releasebommed that file. It came up 3 revisions.
It's just possible the reason the timing has not re-run is because of
some ordering change between those versions.

Let me know what you find.

Thanks
Tim

From: Tim B. Robinson [tbr@gamorra]
Sent: Saturday, November 05, 1994 9:32 PM
To: 'Patricia Mayer'
Cc: 'albers@aphrodite'; 'glen@gamorra'; 'hestia@aphrodite'; 'philip@aphrodite'; 'pmayer@aphrodite'
Subject: Re: prt review

Patricia Mayer wrote (on Thu Nov 3):

> Another part issue that Philip mentioned was a fuducial mark for Caliope and Euterpe. ??

I think this was worked out for the TAB test board and as far as I know we said long ago we would go with the same. Maybe it never made it into the prt. I assume glen has a version in PCAD somewhere.

Tim

From: Tom Laidig [tom@clio]
Sent: Saturday, November 05, 1994 9:43 PM
To: 'Tim B. Robinson'
Cc: 'Mark Hofmann'; 'Brian Lee'; 'Thomas Laidig'
Subject: Re: pager log message

Tim B. Robinson writes:

|Tom Laidig wrote (on Sat Nov 5):

| Tim B. Robinson writes:
| |page from tbr to tom:
| |trouble with proteus snapshot update 338 4152. tbr
| I've just scanned a couple email messages, and am cleaning the junk out
| of merope:/usr/tmp. What else should I be doing?

|Perhaps you could do some poking in the snapshot to assess the damage.
|Here's the history. I started up a top level Make in the s23/proteus.
|For whatever reason, it decided to re-run all the lobe timing.
|There were 2 problems, merope:/tmp full which according to brianl
|causes jobs to die, but with spice returning a success error code.
|Second, there was a problem with mercury (I think) not being able to
|get a spice license for some reason. That caused another bunch of
|things to die, but without creating results (according to brian).
|So, brian said he was removeing around 60 bogus outputs files from the
|jobs that went to merope, and he then took the 2 bad machines off the
|deal list. The run died when deal finally finished with exit1.

|I then restarted the Make, expecting it to re-run the missing cases,
|but instead it went on to make the leafcell layouts and as far as I
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|the merope problem with the leafmold runs dying there, so we now
|possibley have another bunch of bad stuff.

|Since the timing did not re-run I'm worred brian removed files in the
|wrong place. If you could take a look through the makerrs in
|/n/auspex/s41/euterpe-snapshot/euterpe/proteus you will see the
|history. (The current run is being appended.) Please see if you can
|tell if the results of the dying jobs did indeed get removed, and if
|so, why the new run did not remake them.

|One possibly relevant fact is that between the runs I discovered we
|did not have the latest top level Makefilee in the proteus snapshot
|so I updated and releasebommed that file. It came up 3 revisions.
|It's just possible the reason the timing has not re-run is because of
|some ordering change between those versions.

|Let me know what you find.

OK, the change in toplevel Makefile is important. The (version 1.21)
Makefile said

$(MAKE) -C leafgen everything

while the new (version 1.24) one says

$(MAKE) -C leafgen all

I think there's some funky history involved in this, but anyway at the present the `all' target in leafgen/Makefile does more than the `everything' target. Specifically, it runs the make in the leafmold subdirectory before doing the timing stuff. So it's not a matter that the timing stuff didn't get rerun; it just hasn't happened yet. I don't think I understand what happens in the leafgen Makefile well enough to figure out whether brianl did the proper surgery there or not.

BTW, one reason that merope's temp area was full (both /tmp and /usr/tmp are on the /usr disk) is a problem in leafmold. For the most part, it's pretty careful to clean up after itself if it fails, but I missed a case: if it failed because the first cp of files into its temporary directory (/usr/tmp/leafmold.<cellname>) failed, it just exited. It appears that, when I did a big leafmold test run on thursday, the disk was full, and then whatever else had filled it slowly freed up space. Unfortunately, each successive leafmold process filled what was left, then died uncleanly. I have a fixed version in my local area, which I'll check in after some testing.

--

Tom L

From: Tom Vo [vo@merope]
Sent: Saturday, November 05, 1994 9:45 PM
To: 'Tim B. Robinson'
Cc: 'geert@merope'; 'hopper@merope'; 'lisar@merope'; 'tom@merope'; 'vanthof@merope'; 'wampler@merope'
Subject: Re: proteus snapshot stale

Tim B. Robinson wrote ....
>If you are held up for this, I will try and figure out which makes to
>run to get it updated. The timing run is still going in the top level
>make.
>
>Tim
>

I think for the lower layer euterpe baseplate , we just need to run proteus/dcell and proteus/gards .checkoutrc to get the new gtlb footprint .
The new timing number may change how some of the gardswart blocks are built so there's a bit a exposure there . If my run completes before the gardswart rebuild , my netlist could be out of syn wrt the layout .
But the lower layers for the gardswarts should not change .

tvo

From: Tim B. Robinson [tbr@gamorra]
Sent: Saturday, November 05, 1994 9:49 PM
To: 'Tom Vo'
Cc: 'geert@merope'; 'hopper@merope'; 'lisar@merope'; 'tom@merope'; 'vanthof@merope'; 'wampler@merope'
Subject: Re: proteus snapshot stale

Tom Vo wrote (on Sat Nov 5):

> Tim B. Robinson wrote ....
> >If you are held up for this, I will try and figure out which makes to
> >run to get it updated. The timing run is still going in the top level
> >make.
> >
> >Tim
> >
>
> I think for the lower layer euterpe baseplate , we just need to run
> proteus/dcell and proteus/gards .checkoutrc to get the new gtlb footprint .
> The new timing number may change how some of the gardswart blocks are built
> so there's a bit a exposure there . If my run completes before the
> gardswart rebuild , my netlist could be out of syn wrt the layout .
> But the lower layers for the gardswarts should not change .

I'll fire up runs in those areas now.

Tim

From: Mark Hofmann [hopper@boreas]
Sent: Saturday, November 05, 1994 9:50 PM
To: 'Geert Rosseel'; 'Tim B. Robinson'
Cc: 'Tom Vo'
Subject: new pimlib.pl read to install in euterpe/verilog/bsrc

Hi,

I _think_ I've patched the pimlib.pl to handle the new alignment marks correctly. At least it works in the testcases that I tried. when can I do a release?

-thanks,
hopper

From: Mark Hofmann [hopper@boreas]
Sent: Saturday, November 05, 1994 9:52 PM
To: 'Geert Rosseel'
Subject: output of euterpe/verilog/bsrc/nb/.checkoutrc (fwd)

Hi geert,

the NB stuff is released. the exit 1 is because it still fails timing.

-mark

Buffalo Chip writes:
From chip@cyclops Sat Nov 5 17:45:32 1994
Date: Sat, 5 Nov 1994 17:45:26 -0800
From: chip@cyclops (Buffalo Chip)
Message-Id: <199411060145.RAA22272@cyclops.microunity.com>
To: hopper@cyclops
Subject: output of euterpe/verilog/bsrc/nb/.checkoutrc

The output from euterpe/verilog/bsrc/nb/.checkoutrc is 336k, so it is not included in this mail message. Instead, check the file

/n/tmp/chiplog/hopper.cyclops.16571.euterpe-verilog-bsrc-nb

(which is accessible from all machines). This file will disappear in about 5 days.

By the way, the exit status returned by .checkoutrc was 1.

-thanks,
hopper

thanks,
mark hofmann
hopper@microunity.com
408 734 8100

From: Tom Vo [vo@merope]
Sent: Saturday, November 05, 1994 9:52 PM
To: 'Tim B. Robinson'
Cc: 'geert@merope'; 'hopper@merope'; 'lisar@merope'; 'tom@merope'; 'vanthof@merope'; 'wampler@merope'
Subject: Re: proteus snapshot stale

Tim B. Robinson wrote ....
>
>
>Tom Vo wrote (on Sat Nov 5):
>
> Tim B. Robinson wrote ....
> >If you are held up for this, I will try and figure out which makes to
> >run to get it updated. The timing run is still going in the top
level
> >make.
> >
> >Tim
> >
>
>
> I think for the lower layer euterpe baseplate , we just need to run
> proteus/dcell and proteus/gards .checkoutrc to get the new gtlb
footprint .
> The new timing number may change how some of the gardswart blocks
> are
built
> so there's a bit a exposure there . If my run completes before the
> gardswart rebuild , my netlist could be out of syn wrt the layout .
> But the lower layers for the gardswarts should not change .
>
>I'll fire up runs in those areas now.
>
>Tim
>
>

You'll need to run them in sequence : dcell , then gards .

thanks

tvo

From: tbr
Sent: Saturday, November 05, 1994 9:52 PM
To: 'Mark Hofmann'
Cc: 'Geert Rosseel'; 'Tom Vo'
Subject: new pimlib.pl read to install in euterpe/verilog/bsrc
Follow Up Flag: Follow up
Flag Status: Red

Mark Hofmann wrote (on Sat Nov 5):

> Hi,
>
> I _think_ I've patched the pimlib.pl to handle the new alignment marks correctly. At least it works in the testcases that I tried. when can I do a release?

Any time is OK for me.

Tim

From: Tim B. Robinson [tbr@gamorra]
Sent: Saturday, November 05, 1994 9:52 PM
To: 'Mark Hofmann'
Cc: 'Geert Rosseel'; 'Tom Vo'
Subject: new pimlib.pl read to install in euterpe/verilog/bsrc

Mark Hofmann wrote (on Sat Nov 5):

> Hi,
>
> I _think_ I've patched the pimlib.pl to handle the new alignment marks correctly. At least it works in the testcases that I tried. when can I do a release?

Any time is OK for me.

Tim

From: Tim B. Robinson [tbr@gamorra]
Sent: Saturday, November 05, 1994 9:54 PM
To: 'Tom Vo'
Cc: 'geert@merope'; 'hopper@merope'; 'lisar@merope'; 'tom@merope'; 'vanthof@merope'; 'wampler@merope'
Subject: Re: proteus snapshot stale

Tom Vo wrote (on Sat Nov 5):

> Tim B. Robinson wrote ....
> >
> >
> >Tom Vo wrote (on Sat Nov 5):
> >
> > Tim B. Robinson wrote ....
> > >If you are held up for this, I will try and figure out which makes to
> > >run to get it updated. The timing run is still going in the top level
> > >make.
> > >
> > >Tim
> > >
> >
> >
> > I think for the lower layer euterpe baseplate , we just need to run
> > proteus/dcell and proteus/gards .checkoutrc to get the new gtlb footprint .
> > The new timing number may change how some of the gardswart blocks are built
> > so there's a bit a exposure there . If my run completes before the
> > gardswart rebuild , my netlist could be out of syn wrt the layout .
> > But the lower layers for the gardswarts should not change .
> >
> >I'll fire up runs in those areas now.
> >
> >Tim
> >
> >

> You'll need to run them in sequence : dcell , then gards .

Yes. Dcell is running now, but I see:

```
ERROR -- can't find cell `XBLDH4S' (boo file `../compass/vlsi.boo-all') ERROR -- can't
find cell `XBORL2DH4S' (boo file `../compass/vlsi.boo-all') ERROR -- can't find cell
`XBORL2DF4S' (boo file `../compass/vlsi.boo-all') ERROR -- can't find cell `XBORL3DF4S'
(boo file `../compass/vlsi.boo-all') ERROR -- can't find cell `XBLDF4S' (boo file
`../compass/vlsi.boo-all')
```

It seems to be continuing though.

Tim

From: Tom Vo [vo@merope]
Sent: Saturday, November 05, 1994 9:55 PM
To: 'Mark Hofmann'
Cc: 'geert@boreas'; 'tbr@boreas'; 'vo@boreas'
Subject: Re: new pimlib.pl read to install in euterpe/verilog/bsrc

Mark Hofmann wrote ....
>
>
>Hi,
>
> I _think_ I've patched the pimlib.pl to handle the new alignment
>marks correctly. At least it works in the testcases that I tried. when
>can I do a release?
>
> -thanks,
> hopper
>

10am and 5pm of course . You should know better -- you're the official release police :-)

tvo

From: Mark Hofmann [hopper@boreas]
Sent: Saturday, November 05, 1994 9:56 PM
To: 'Tim B. Robinson'
Cc: 'geert@boreas'; 'vo@boreas'
Subject: Re: new pimlib.pl read to install in euterpe/verilog/bsrc

Tim B. Robinson writes:
> hopper writes:
> > I _think_ I've patched the pimlib.pl to handle the new alignment marks
> > correctly. At least it works in the testcases that I tried. when can I
> > do a release?
>
> Any time is OK for me.
>
> Tim

Okay, I've just done a of pimlib.pl only in th euterpe/verilog/bsrc directory.

-hopper

From: tbr
Sent: Saturday, November 05, 1994 9:56 PM
To: 'dickson'
Subject: forwarded message from Guillermo A. Loyola
Follow Up Flag: Follow up
Flag Status: Red

What's the last word on shift overflows

------- Start of forwarded message -------
Status: RO
X-VM-v5-Data: ([nil nil nil nil t nil nil nil nil]
["354" "Thu" "3" "November" "94" "17:31:10" "-0800" "Guillermo A. Loyola" "gmo@bilbo "
"<9411040131.AA18003@bilbo>" "7" "Re: shift overflow instructions" "^From:" nil nil "11"])
Return-Path: <gmo@bilbo>
Received: from rimulac.microunity.com by gaea.microunity.com (4.1/muse1.3)
id AA16837; Thu, 3 Nov 94 17:31:19 PST
Received: from bilbo by rimulac.microunity.com (8.6.4/muse-sw.2)
id RAA28463; Thu, 3 Nov 1994 17:31:17 -0800
Received: by bilbo (931110.SGI.ANONFTP/930416.SGI)
for veena@rimulac.microunity.com id AA18003; Thu, 3 Nov 94 17:31:10 -0800
Message-Id: <9411040131.AA18003@bilbo>
From: gmo@bilbo (Guillermo A. Loyola)
To: tbr@rimulac, lisar@rimulac, jeffm@rimulac, veena@rimulac (Veena Malwankar)
Cc: dickson@bilbo
Subject: Re: shift overflow instructions
Date: Thu, 3 Nov 94 17:31:10 -0800

I though Rich was still looking at possibly implementing those using the lms hardware.
Otherwise I guess I'll have to change terp to be bug-compatible with the hardware
(Bug because if the instruction does not do what it is supposed to it just shouldn't
be there, but yea I know, checking for it to produce the exceptions is more atomes, right?).

Gmo.

------- End of forwarded message -------

From: Mark Hofmann [hopper@boreas]
Sent: Saturday, November 05, 1994 9:57 PM
To: 'Tom Vo'
Cc: 'geert@boreas'; 'tbr@boreas'; 'vo@boreas'
Subject: Re: new pimlib.pl read to install in euterpe/verilog/bsrc

Tom Vo writes:

> 10am and 5pm of course . You should know better --
> you're the official release police :-)

Oops!
(Luckily, I got this mail _after_ I had already done the release!)

-hopper

From: tbr
Sent: Saturday, November 05, 1994 10:02 PM
To: 'Mark Hofmann'
Cc: 'geert@boreas'; 'vo@boreas'; 'Tom Vo'
Subject: Re: new pimlib.pl read to install in euterpe/verilog/bsrc
Follow Up Flag: Follow up
Flag Status: Red

Mark Hofmann wrote (on Sat Nov 5):

> Tom Vo writes:
>
> > 10am and 5pm of course . You should know better --
> > you're the official release police :-)
>
> Oops!
> (Luckily, I got this mail _after_ I had already done the release!)

I think that rule really only applies to proteus. . .

Tim

From: Tim B. Robinson [tbr@gamorra]
Sent: Saturday, November 05, 1994 10:02 PM
To: 'Mark Hofmann'
Cc: 'geert@boreas'; 'vo@boreas'; 'Tom Vo'
Subject: Re: new pimlib.pl read to install in euterpe/verilog/bsrc

Mark Hofmann wrote (on Sat Nov 5):

> Tom Vo writes:
>
> > 10am and 5pm of course . You should know better --
> > you're the official release police :-)
>
> Oops!
> (Luckily, I got this mail _after_ I had already done the release!)

I think that rule really only applies to proteus. . .

Tim

From: tbr
Sent: Saturday, November 05, 1994 10:10 PM
To: 'tom'
Subject: ged makefile
Follow Up Flag: Follow up
Flag Status: Red

Is it significant that whenever I restat the top level Make it always
does:

```
gmake  -C ged config-files
gmake[1]: Entering directory `/N/auspex/root/s23/euterpe-proteus-cp/ged'
for LIB in " aa ad af bb cl bg ca cg cr ct ea gt io led lo mb pa pl ra ram rd rx sc spice sy test ttl ts vd vr xa xb xbq xc devices
primitives doc ; do \
   if [ -z "$LIB" ] ; then continue; fi; \
        if [ ! -f $LIB/$LIB.lib ] ; then \
           mkdir -p $LIB; \
           echo 'FILE_TYPE = SPICE_DIR;' > $LIB/$LIB.lib; \
           echo 'END.' >> $LIB/$LIB.lib; \
        fi; \
        CHIPROOT=/n/auspex/s23/euterpe-proteus-cp /n/auspex/s23/euterpe-proteus-cp/tools/bin/mkgedlib -cluS $LIB; \
done
```

Tim

From: tbr
Sent: Saturday, November 05, 1994 10:15 PM
To: 'dickson'
Subject: forwarded message from Craig Hansen
Follow Up Flag: Follow up
Flag Status: Red

------- Start of forwarded message -------
Status: RO
X-VM-v5-Data: ([nil nil nil nil nil nil nil nil]
["3001" "Fri" "4" "November" "1994" "10:54:57" "-0800" "Craig Hansen" "craig@mnemosyne " nil "67" "Re: bring-up meeting of November 2" "^From:" nil nil "11"])
Return-Path: <craig@mnemosyne>
Received: from mnemosyne.microunity.com by gaea.microunity.com (4.1/muse1.3)
id AA15779; Fri, 4 Nov 94 10:55:02 PST
Received: from localhost by mnemosyne.microunity.com (8.6.4/muse-sw.2)
id KAA14379; Fri, 4 Nov 1994 10:54:57 -0800
Message-Id: <199411041854.KAA14379@mnemosyne.microunity.com>
From: craig@mnemosyne (Craig Hansen)
To: craig@echidna, wayne@echidna
Cc: euterpe@mnemosyne
Subject: Re: bring-up meeting of November 2
Date: Fri, 4 Nov 1994 10:54:57 -0800

Wayne wrote:

> Ask Craig if an abort invalidates the byte in transit
> or the entire packet. (Wayne)

Craig, I was given an action item to verify a question with you. When an Abort is issued, is the byte only invalidated, or is the entire packet be invalidated. In addition, is there a specific time response for the sending device to respond to the Abort (retransmit) before another device grabs the bus, or is it first come first serve here?

Thanks,

Wayne

Craig responds:

An abort, in which the SD line is driven low for 12-22 cycles, causes the entire transaction to be aborted. This is more extensive than the choices you gave me (byte in transit or the entire packet); the entire transaction is aborted, no matter whether the current packet is a request or response. [see page TSA 14-Apr-94 page 294.]

After an abort, the next transaction may begin immediately upon seeing SD high for one cycle (which ends the abort) [Page 294]. A device which has lost the arbitration of a collision, or has suffered the occurrence of a transaction abort, may retry the transmission immediately [Page 296]. All other devices must wait one additional cycle before transmitting, ensuring that all devices which have collided perform their operations before

another set of devices arbitrate again [Page 296]. It may be noted that other devices which were arbitrating for access at the same time as the device which initiated the aborted transaction get the opportunity to respond at the same time as the previous initiator; provided that the contents of the requests are the same as the previous transaction, the result of the arbitration on the retransmitted transaction should be the same as the previous, aborted, transaction.

The above mechanism might appear to ensure that an transaction initator, one having begin a transaction can simply assume that it need not worry about another transaction grabbing the bus away. However, this is not the case. Firstly, a transaction abort may occur before arbitration has been completed on the local Cerberus bus, and the initator may lose arbitration on the retransmission. The initator must be prepared to accept the loss of arbitration, even when the loss implies that it must respond as a target of the transaction. Secondly, gateways and repeaters may need to apparently override the local fairness mechanism to ensure global fairness or to avoid system deadlock, and in such cases, may begin a retransmission immediately upon the end of an abort even though it wasn't among the set of initiators of the previous transaction. [see page 307]

Also, a device which requires a delay after an aborted transaction may force the delay bit after the first byte of the immediately following transaction, and may cause the first byte to be re-transmitted by aborting the following transaction after requesting a suitable delay [page 297].

Regards,
Craig

------- End of forwarded message -------

From: Tom Vo [vo@merope]
Sent: Saturday, November 05, 1994 10:16 PM
To: 'Fred Obermeier'; 'Geert Rosseel'; 'Mark Hofmann'; 'Tim B. Robinson'; 'Dave Van't Hof'
Subject: proteus/baseplate

I came across some illegal tool usage in proteus/Makefile.base such as vlsimm instead of $(VLSIMM) and was getting ready to fix them when the following message caught my eyes .

```
RCS file: /p/cvsroot/proteus/baseplate/Makefile.base,v
Working file: Makefile.base
head: 1.64
branch:
locks: strict
access list:
symbolic names:
comment leader: "# "
keyword substitution: kv
total revisions: 64;    selected revisions: 64
description:
----------------------------
revision 1.64
date: 1994/10/20 18:07:08 LT;  author: fwo;  state: Exp;  lines: +1 -4 Remove support for
old pad type: custom_vdd_pad.  It's not used by calliope or euterpe.
```

I know for a fact the the custom block cr on euterpe uses this cell . We should chase this one down . Fred ???

tvo

From: tbr
Sent: Saturday, November 05, 1994 10:19 PM
To: 'doi'; 'jeffm'; 'lisar'
Subject: Makefile problem
Follow Up Flag: Follow up
Flag Status: Red

There is something wrong in one of the proteus Makefiles. In attempting to get the proteus snapshot up to date I have had to restart the top level Makefile several times. It repeatedly remakes some Zycad bmods. Clearly I would expect this only to happen once:

5.1a/XPLUS5.1a/bin/bmodlib -add ./xpdir SDRAM.bmod
Updating "SDRAM.bmod"...
xpdir/SDRAM.bmod:
xpdir/SDRAM.c:
LM_LICENSE_FILE=/n/auspex/s23/euterpe-proteus-cp/tools/vendor/zycad/license/license.dat CASE_INSENSITIVE=true ZYCAD=/n/auspex/s23/euterpe-proteus-cp/tools/vendor/zycad.5.1a XPLUS_VER=5.1a /n/auspex/s23/euterpe-proteus-cp/tools/vendor/zycad.5.1a/XPLUS5.1a/bin/bmodlib -add ./xpdir SNOOPY.bmod cerbsnoop.o
Updating "SNOOPY.bmod"...
Updating "cerbsnoop.o"...
xpdir/SDRAM.bmod:
xpdir/SDRAM.c:
xpdir/SNOOPY.bmod:
xpdir/SNOOPY.c:
LM_LICENSE_FILE=/n/auspex/s23/euterpe-proteus-cp/tools/vendor/zycad/license/license.dat CASE_INSENSITIVE=true ZYCAD=/n/auspex/s23/euterpe-proteus-cp/tools/vendor/zycad.5.1a XPLUS_VER=5.1a /n/auspex/s23/euterpe-proteus-cp/tools/vendor/zycad.5.1a/XPLUS5.1a/bin/bmodlib -add ./xpdir HERMES.bmod he.o
Updating "HERMES.bmod"...
Updating "he.o"...
xpdir/HERMES.bmod:
xpdir/HERMES.c:
LM_LICENSE_FILE=/n/auspex/s23/euterpe-proteus-cp/tools/vendor/zycad/license/license.dat CASE_INSENSITIVE=true ZYCAD=/n/auspex/s23/euterpe-proteus-cp/tools/vendor/zycad.5.1a XPLUS_VER=5.1a /n/auspex/s23/euterpe-proteus-cp/tools/vendor/zycad.5.1a/XPLUS5.1a/bin/bmodlib -add ./xpdir HC_ARCH.bmod hw_if.o
Updating "HC_ARCH.bmod"...
Updating "hw_if.o"...
xpdir/HC_ARCH.bmod:
xpdir/HC_ARCH.c:
/bin/mv ./xpdir/*.edif2 ../zeblib

From: Mark Hofmann [hopper@boreas]
Sent: Saturday, November 05, 1994 10:28 PM
To: 'Tom Vo'
Cc: 'fwo@merope'; 'geert@merope'; 'hopper@merope'; 'tbr@merope'; 'vanthof@merope'
Subject: Re: proteus/baseplate

Tom Vo writes:

> [snip]
> ----------
> revision 1.64
> date: 1994/10/20 18:07:08 LT; author: fwo; state: Exp; lines: +1 -4
> Remove support for old pad type: custom_vdd_pad. It's not used by calliope
> or euterpe.
>
> I know for a fact the the custom block cr on euterpe uses this cell .
> We should
> chase this one down . Fred ???
>
> tvo

Okay. Indeed you appear to be correct:

```
cr2a.ly:# "12-Sep-94 GMT" "22:03:23 GMT" "12-Sep-94 GMT" "22:01:07 GMT"
efelias * .ly crclkint8 crclkint4 crclkint7 crclkint6 crarray cr12isrc crbbcstm
crbellybutt custom_vss_pad custom_vdd_pad npoly1wafl cr2apwaf borderpwr .
cr2a.ly:R "i157" 24960 10560 Rot1 "custom_vdd_pad" layout "" 4 1 -7680 0 cr2a.ly:I "i127"
32640 10560 Rot1 "custom_vdd_pad" layout ""
cr2a.ly:I "i121" 40320 10560 Rot1 "custom_vdd_pad" layout ""
cr2a.ly:R "i119" 71040 10560 Rot1 "custom_vdd_pad" layout "" 4 1 -7680 0

cr3a.ly:# "12-Sep-94 GMT" "17:41:23 GMT" "12-Sep-94 GMT" "17:39:02 GMT"
efelias * .ly crclkint5 crclkintb crclkinta cr12isrc nwaff4u cr3pgsas crbbcstm crbellybutt
crdindrvs custom_vss_pad custom_vdd_pad crarray cr3apwaf borderpwr .
cr3a.ly:R "i112" 24960 2160 Rot1 "custom_vdd_pad" layout "" 4 1 -7680 0 cr3a.ly:I "i77"
32640 2160 Rot1 "custom_vdd_pad" layout ""
cr3a.ly:I "i68" 40320 2160 Rot1 "custom_vdd_pad" layout ""
cr3a.ly:R "i66" 71040 2160 Rot1 "custom_vdd_pad" layout "" 4 1 -7680 0

At least these 2 cells use custom_vdd_pad.
Is this cell to be superceded, Fred?

-hopper
```

From: Tom Laidig [tom@clio]
Sent: Saturday, November 05, 1994 10:53 PM
To: 'Kurt Wampler'
Cc: 'hopper@boreas'; 'vo@merope'; 'doi@nosferatu'; 'geert@merope'; 'hopper@merope'; 'lisar@nosferatu'; 'tbr@merope'; 'tom@nosferatu'; 'vanthof@merope'
Subject: Re: protection in s41

Kurt Wampler writes:

```
|
|>Mark Hofmann wrote ....
|>>
|>>Tom Vo writes:
|>>
|>>   It is our friend cp -p   , and there're a few of them .
|>>
|>>Where are they to be found- in a .checkoutrc or Makefile?`
|>>
|>>-hopper
|>>
|>
|>They're in the clockbias Makefile :
|>
|>
|>/n/auspex/s41/euterpe-snapshot/euterpe/proteus/clockbias/Makefile.rules:
-cp -p cbsofa_model.ly cbsofa_mask.ly cbsofa_exclude.ly $(BASE)
|>/n/auspex/s41/euterpe-snapshot/euterpe/proteus/clockbias/Makefile.rules:
cp -p $(CPROTO)/cbsofa.tdl .
|>/n/auspex/s41/euterpe-snapshot/euterpe/proteus/clockbias/Makefile.rules:
cp -p $(CPROTO)/clockpairs.rcf .
|>/n/auspex/s41/euterpe-snapshot/euterpe/proteus/clockbias/Makefile.rules:
cp -p $(CPROTO)/clockbias.rcf .
|>/n/auspex/s41/euterpe-snapshot/euterpe/proteus/clockbias/Makefile.rules:
cp -p knob*.ly clockbias.ly cgclockbias.ly $(BASE)
|>/n/auspex/s41/euterpe-snapshot/euterpe/proteus/clockbias/Makefile.rules:
-cp -p $@ $(BASE)
|>
|>
|>
|>tvo
|
|Wampler replies:
|---------------
|
|  ...and in the gardswarts Makefile, and in virtually every other
| script and Makefile I've produced, the preservation of the date/time
| stamp and protection mode during copy is *exactly* the behavior I
| want.
```

Well, it ain't the behavior _I_ want. I'd rather have gmake know the correct time when a file changed, so it can do its job. Have we already forgotten the last time this issue came up? The details have happily faded from my memory, but it seems to me we spent at least a day chasing some error that we knew we had fixed, but gmake didn't know it because of a `cp -p'.

As I mentioned before, you've all heard me bellyache about this in the past. To reiterate: propagating the timestamp of the original file is absolutely, unquestionably, incontrovertably _wrong_ for any case where the timestamp of the result is used by gmake to determine what it needs to do. It is necessary to have the timestamp reflect the time of change of the particular copy of the file that is being used. Using any other timestamp is asking for trouble. Besides, who the heck cares what the timestamp of the source information was? Do we set the timestamp of each checked out copy of a file to the date of the checkin? Of course not!

|

> <FLAME ON>
> I contend that cp's failure to deal properly with the case where the
> file is being written under group permission is a UNIX bug.

Call it a bug if you like, but it's a pretty inevitable result of the permissions system. If you don't own the file, you can't screw with the inode. It would be a bigger mistake for `cp -p' to try to force ownership of the file by removing the old and creating a new one, since then it will fail if you don't have write permission on the directory.

> I tested the behavior of "cp -p" under SunOS, IRIX, and HP/UX. SunOS
> permits the contents of the file to be copied, but croaks when it
> tries to set permission/timestamp. Under IRIX it copies the
> contents, propagates the date, but does not update the protection
> mode, yet exits with 0 status. Better, but still not correct.

No, that's worse. It failed to do what you explicitly told it was required, yet it gave no error indication. That's what _I_ call a bug.
BTW, in my test, it didn't propagate the old date (which it couldn't have done, since I didn't own the file); it simply acted like a regular cp.

> Under HP/UX, it fails altogether -- it doesn't even copy the
> contents. In fact, a regular "cp" without the "-p" switch fails too.
> When I add "o+w" to my test file, HP/UX copies and sets the date, but
> fails on the mode change. Really brain dead implementation.
> <FLAME OFF>
>
> I believe adding a "-" in front of the line above which reads:
>
> cp -p knob*.ly clockbias.ly cgclockbias.ly $(BASE)
>
> will alleviate the immediate problem. I have made and releasebom'ed
> this change.

ACK!!!

So we'll just ignore whether or not the copy succeeds?!?!?

The correct fix is to get rid of the bloody -p option, and quit trying to lie to people (and, worse, programs) about when a file changed.

Look, I apologize for the strident tone of this message, but this is not an unimportant issue, and I had thought we had already hashed it out. I for one am not anxious to be called in a _third_ time to help diagnose some screwball problem caused by `cp -p'. I'm going to compile a list of all files in the repository that contain the string `cp -p', and I strongly recommend we change every one of them, unless there is some specific reason why a regular `cp' can't be used instead (I can't imagine what such a reason would be, but I'll accept the possibility that it might exist).

--
Tom L

From: Tom Laidig [tom@clio]
Sent: Saturday, November 05, 1994 11:05 PM
To: 'Tim B. Robinson'
Cc: 'tom@gamorra'
Subject: Re: ged makefile

Tim B. Robinson writes:

```
|
|
|Is it significant that whenever I restat the top level Make it always
|does:
|
|gmake  -C ged config-files
|gmake[1]: Entering directory `/N/auspex/root/s23/euterpe-proteus-cp/ged'
|for LIB in " aa ad af bb cl bg ca cg cr ct ea gt io led lo mb pa pl ra ram rd rx sc spice sy test ttl ts vd vr xa xb xbq xc devices
primitives doc ; do \
|   if [ -z "$LIB" ] ; then continue; fi; \
|        if [ ! -f $LIB/$LIB.lib ] ; then \
|           mkdir -p $LIB; \
|           echo 'FILE_TYPE = SPICE_DIR;' > $LIB/$LIB.lib; \
|           echo 'END.' >> $LIB/$LIB.lib; \
|        fi; \
|        CHIPROOT=/n/auspex/s23/euterpe-proteus-cp /n/auspex/s23/euterpe-proteus-cp/tools/bin/mkgedlib -cluS $LIB; \
|done
```

Not particularly. That rule seems to be set up always to run. This
kinda makes sense, since really it should run any time a new schematic
is added to (or deleted from) any subdirectory. Getting the
dependencies right would be harder than just rebuilding the xx/xx.lib
files.

--
Tom L

From: Tom Laidig [tom@clio]
Sent: Saturday, November 05, 1994 11:10 PM
To: 'Tim B. Robinson'
Cc: 'tom@aphrodite'; 'geert@aphrodite'; 'hopper@aphrodite'
Subject: Re: permisions problem

Tim B. Robinson writes:

> I just tried to fire off a make of the snapshot proteus following the
> getbom. It died immediately because of a permission problem trying to
> update ged/mb/mb.lib. I restarted it as chip and it has got past
> there. Is everything in that tree owned by chip? We have the euterpe
> snapshot set up to be group writeable by cad so people can work there
> without having to su to chip. Since we don't expect too frequent
> changes to proteus it should be no problem having to su, so long as
> everything is consistently owned by chip.

Hmmm... I had thought everything was group-writable in proteus, too, but perhaps some were missed. I think it's safer for proteus to just do everything as chip.

--
Tom L

From: tbr
Sent: Saturday, November 05, 1994 11:21 PM
To: 'Tom Laidig'
Cc: 'geert@aphrodite'; 'hopper@aphrodite'; 'tom@aphrodite'
Subject: Re: permisions problem
Follow Up Flag: Follow up
Flag Status: Red

Tom Laidig wrote (on Sat Nov 5):

> Tim B. Robinson writes:
> |
> |I just tried to fire off a make of the snapshot proteus following the
> |getbom. It died immediately because of a permission problem trying to
> |update ged/mb/mb.lib. I restarted it as chip and it has got past
> |there. Is everything in that tree owned by chip? We have the euterpe
> |snapshot set up to be group writeable by cad so people can work there
> |without having to su to chip. Since we don't expect too frequent
> |changes to proteus it should be no problem having to su, so long as
> |everything is consistently owned by chip.
>
> Hmmm... I had thought everything was group-writable in proteus, too, but
> perhaps some were missed. I think it's safer for proteus to just do
> everything as chip.

I thought I heard someone say that chip was not in group cad, so that may be part of the problem.

Tim

From: Tim B. Robinson [tbr@gamorra]
Sent: Saturday, November 05, 1994 11:21 PM
To: 'Tom Laidig'
Cc: 'geert@aphrodite'; 'hopper@aphrodite'; 'tom@aphrodite'
Subject: Re: permisions problem

Tom Laidig wrote (on Sat Nov 5):

> Tim B. Robinson writes:
> |
> |I just tried to fire off a make of the snapshot proteus following the
> |getbom. It died immediately because of a permission problem trying to
> |update ged/mb/mb.lib. I restarted it as chip and it has got past
> |there. Is everything in that tree owned by chip? We have the euterpe
> |snapshot set up to be group writeable by cad so people can work there
> |without having to su to chip. Since we don't expect too frequent
> |changes to proteus it should be no problem having to su, so long as
> |everything is consistently owned by chip.
>
> Hmmm... I had thought everything was group-writable in proteus, too, but
> perhaps some were missed. I think it's safer for proteus to just do
> everything as chip.

I thought I heard someone say that chip was not in group cad, so that may be part of the problem.

Tim

From: Tom Laidig [tom@clio]
Sent: Saturday, November 05, 1994 11:23 PM
To: 'Tim B. Robinson'
Cc: 'tom@gamorra'
Subject: Re: leafmold

Tim B. Robinson writes:

> Tom Laidig wrote (on Sat Nov 5):
>
> > Tim B. Robinson writes:
> >
> > > Tom Laidig wrote (on Sat Nov 5):
> > >
> > > > Tim B. Robinson writes:
> > > >
> > > > Looks like there is more trouble. I think I started up the re-run as
> > > > me rather than chip and there are probably permissions problems all
> > > > over the place. Please look at the log files in the leafmold
> > > > directory and let me know if I should kill it and restart as chip.
> > >
> > > I don't see any evidence that problems were caused by that, but a bunch
> > > of stuff crapped out because of tmp disk messes (on merope, and, to a
> > > lesser extent, on psyche). I suggest killing and restarting because of
> > > this, and then you might as well restart as chip. Also, I'll start a
> > > find looking for files owned by you, which we probably want to delete
> > > before restarting the run as chip.
> > >
> > > OK. It's dead. Let me know when to restart.
> >
> > It took a while for the find to complete. Here's the list of files you
> > own:
>
> ./ged/master.local
> ./ged/startup.concept
> ./leafgen/leafmold/Depend
> ./leafgen/leafmold/tmp.list.marathon
> ./leafgen/leafmold/tmp.list.merope
> ./leafgen/leafmold/tmp.list.psyche
> ./leafgen/leafmold/tmp.list.thalia
> ./leafgen/leafmold/tmp.list.hepatu
> ./leafgen/leafmold/tmp.make.out.thalia
> ./leafgen/leafmold/tmp.make.out.hepatu
> ./leafgen/leafmold/tmp.make.out.marathon
> ./leafgen/leafmold/tmp.make.out.merope
> ./leafgen/leafmold/tmp.make.out.psyche
> ./leafgen/leafmold/xbmux2dh2s.tmp.eclstats
> ./verilog/libsrc/BOM
> ./verilog/libsrc/depend
> ./verilog/libsrc/CVS/Entries
> ./verilog/libsrc/tlbmpl3.V
> ./verilog/libsrc/cpllmacro1.V
> ./verilog/libsrc/pl_euh_macro.V
> ./verilog/libsrc/pl_eus_macro.V

| ./verilog/libsrc/Makefile
| ./verilog/libsrc/sc2p3a.V
| ./verilog/clib/sc2p3a.v
| ./verilog/dclib/sc2p3a.v
| ./verilog/zclib/sc2p3a.v
| ./verilog/eclib/cpllmacro1.edif
| ./verilog/eclib/tlbmpl3.edif
| ./verilog/eclib/pl_eus_macro.edif
| ./verilog/eclib/pl_euh_macro.edif
| ./verilog/eclib/sc2p3a.edif
| ./verilog/zblibsrc/logicsim.old
| ./BOM
| ./BOM.BAK
| ./CVS/Entries
| ./makerrs
| ./Makefile
|
| So it looks as if you did the getbom as yourself as well as the make.
| I suggest you remove at least the derived files in this list, and then
| restart the make. It might be adequate to make these files
| group-writable, but I'm not sure...
|
|I didn't do a getbom, you did! At least I havene't done one recently.
|I'll see if I can clean up my mess.

Oh. Oh? I'm confused again...

```
-clio:tom-> ll /n/auspex/s41/euterpe-snapshot/euterpe/proteus/BOM
  1 -rwxrwxr-x  1 tbr     cad          881 Nov  5 11:07 /n/auspex/s41/euterpe-snapshot/euterpe/proteus/BOM*
-clio:tom->
```

--
Tom L

From: tbr
Sent: Saturday, November 05, 1994 11:25 PM
To: 'Tom Laidig'
Cc: 'tom@gamorra'
Subject: Re: leafmold
Follow Up Flag: Follow up
Flag Status: Red

Tom Laidig wrote (on Sat Nov 5):

> Oh. Oh? I'm confused again...
>
> -clio:tom-> ll /n/auspex/s41/euterpe-snapshot/euterpe/proteus/BOM
> l -rwxrwxr-x 1 tbr cad 881 Nov 5 11:07 /n/auspex/s41/euterpe-snapshot/euterpe/proteus/BOM*
> -clio:tom->

Ah, I understand this one. I had to update the top level Makefile.
It had not beed released so I did a releasebom of just that file from
the snapshot. That would have touched the BOM at the top.

I'll probably also own up to updating the BOM in libsrc, but that was
a while back.

Tim

From: tbr
Sent: Saturday, November 05, 1994 11:27 PM
To: 'tom'; 'vo'
Subject: New problem
Follow Up Flag: Follow up
Flag Status: Red

OK, I have been trying to do a make in the dcell directory to get what
tom vo needs before I wat for all the leafcell stuff.

It just died:

```
# We don't always get a good gbox from compass . vlsi_gbox forces a clean gbox
CHIPROOT=/n/auspex/s23/euterpe-proteus-cp /n/auspex/s23/euterpe-proteus-cp/tools/bin/vlsi_gbox -v ../compass/vlsi.boo-
all ttle2ttl.ly
mv ttle2ttl.ly ../compass/dcell/ttle2ttl.ly
gmake[1]: *** No rule to make target `_MISSING_LAYOUT_FILE_'.  Stop.
gmake[1]: Leaving directory `/N/auspex/root/s23/euterpe-proteus-cp/dcell'
gmake: *** [dcells] Error 1
```

What's going on here?

Tim

From: Fred Obermeier [fwo@pelagon]
Sent: Saturday, November 05, 1994 11:28 PM
To: 'hopper@boreas'; 'vo@merope'
Cc: 'fwo@pelagon'; 'geert@merope'; 'hopper@merope'; 'tbr@merope'; 'vanthof@merope'
Subject: Re: proteus/baseplate

Hi all,

Custom_vdd_pad and custom_vdde_pad.ly cells contain the same information and map to the same cells on the space transformer.

During the time calliope was being assembled, Geert agreed that we should only have one vdde pad, and we should call it vdde. All custom_vdd_pad instances were changed into custom_vdde_pad instances. When I grep /u/chip/calliope/compass/baseplate/*.ly, I do not see any references to custom_vdd_pad. I also put a note in the Makefile saying that the custom_vdd_pad instance will no longer be supported (OLD). A while ago I removed the lines from the Makefile that map this instance.

We wanted to only have custom_vss_pad, custom_vdde_pad, custom_vdda_pad, sofa_vdd_pad and sofa_vss_pad cells.

So, given the current situation, we could either:
1. Change all custom_vdd_pad to custom_vdde_pad as previously agreed, OR 2. Change the proteus/baseplate/Makefile.base back to support both
vdd pads.

Which do we want to do? Either change should be easy, but the second would perpetute the confusion over the two different named, but identical vdd pad cells.

To implement solution 1 requires:

```
foreach f (euterpe/compass/layouts)
sed 's/custom_vdd_pad/custom_vdde_pad/g' < $f > $f.tmp
mv $f.tmp $f
end
cvs ci -m "Changed custom_vdd_pad to custom_vdde_pad"
```

To implement solution 2 requires:

```
cvs diff -r #.## -r #.## Makefile.base
vi Makefile.base        # to put back the changes
```

Fred.

From: Tom Laidig [tom@clio]
Sent: Saturday, November 05, 1994 11:40 PM
To: 'Tim B. Robinson'
Cc: 'tom@gamorra'; 'vo@gamorra'
Subject: Re: New problem

Tim B. Robinson writes:

|
|
|OK, I have been trying to do a make in the dcell directory to get what
|tom vo needs before I wat for all the leafcell stuff.
|
|It just died:
|
|# We don't always get a good gbox from compass . vlsi_gbox forces a clean gbox
|CHIPROOT=/n/auspex/s23/euterpe-proteus-cp /n/auspex/s23/euterpe-proteus-cp/tools/bin/vlsi_gbox -v ../compass/vlsi.boo-all ttle2ttl.ly
|mv ttle2ttl.ly ../compass/dcell/ttle2ttl.ly
|gmake[1]: *** No rule to make target `_MISSING_LAYOUT_FILE_'. Stop.
|gmake[1]: Leaving directory `/N/auspex/root/s23/euterpe-proteus-cp/dcell'
|gmake: *** [dcells] Error 1
|
|
|What's going on here?

When layout dependencies are being built and some subcell can't be found, the text `_MISSING_LAYOUT_FILE_ missing-cell.ly' is put in the dependency file, to make sure that gmake knows it can't build the thing that depends on this. In this case, the missing cells are

```
-clio:proteus-> grep MISSING dcell/Depend
    _MISSING_LAYOUT_FILE_ XBLDH4S.ly \
    _MISSING_LAYOUT_FILE_ XBORL2DH4S.ly \
    _MISSING_LAYOUT_FILE_ XBORL2DF4S.ly \
    _MISSING_LAYOUT_FILE_ XBORL3DF4S.ly \
    _MISSING_LAYOUT_FILE_ XBLDF4S.ly \
-clio:proteus->
```

In this case, all these are used by vdactop, so we can ignore that problem. However, some other cells may not have made, since gmake ditched out when it encountered the first problem. You can get past this by manually running gmake with the -k option to cause it to build everything it can.

--
Tom L

From: tbr
Sent: Saturday, November 05, 1994 11:42 PM
To: 'Tom Laidig'
Cc: 'tom@gamorra'; 'vo@gamorra'
Subject: Re: New problem
Follow Up Flag: Follow up
Flag Status: Red

Tom Laidig wrote (on Sat Nov 5):

> Tim B. Robinson writes:
> |
> |
> |OK, I have been trying to do a make in the dcell directory to get what
> |tom vo needs before I wat for all the leafcell stuff.
> |
> |It just died:
> |
> |# We don't always get a good gbox from compass . vlsi_gbox forces a clean gbox
> |CHIPROOT=/n/auspex/s23/euterpe-proteus-cp /n/auspex/s23/euterpe-proteus-cp/tools/bin/vlsi_gbox -
> v ../compass/vlsi.boo-all ttle2ttl.ly
> |mv ttle2ttl.ly ../compass/dcell/ttle2ttl.ly
> |gmake[1]: *** No rule to make target `_MISSING_LAYOUT_FILE_'. Stop.
> |gmake[1]: Leaving directory `/N/auspex/root/s23/euterpe-proteus-cp/dcell'
> |gmake: *** [dcells] Error 1
> |
> |
> |What's going on here?
>
> When layout dependencies are being built and some subcell can't be
> found, the text `_MISSING_LAYOUT_FILE_ missing-cell.ly' is put in the
> dependency file, to make sure that gmake knows it can't build the thing
> that depends on this. In this case, the missing cells are
>
> ```
> -clio:proteus-> grep MISSING dcell/Depend
>    _MISSING_LAYOUT_FILE_ XBLDH4S.ly \
>    _MISSING_LAYOUT_FILE_ XBORL2DH4S.ly \
>    _MISSING_LAYOUT_FILE_ XBORL2DF4S.ly \
>    _MISSING_LAYOUT_FILE_ XBORL3DF4S.ly \
>    _MISSING_LAYOUT_FILE_ XBLDF4S.ly \
> -clio:proteus->
> ```
>
> In this case, all these are used by vdactop, so we can ignore that
> problem. However, some other cells may not have made, since gmake
> ditched out when it encountered the first problem. You can get past
> this by manually running gmake with the -k option to cause it to build
> everything it can.

I want to be able to run the Makefile from the top without error,
so I don't want to do it that way. I notice that in custom-list
there are lots of lines commented out corresponding to other calliope
stuff. Looks to me like I could just comment it out there and it will
treat that one as a dcell rather than a real one.

From: Tom Vo [vo@merope]
Sent: Sunday, November 06, 1994 12:33 AM
To: 'Fred Obermeier'
Cc: 'hopper@boreas'; 'fwo@pelagon'; 'geert@merope'; 'hopper@merope'; 'tbr@merope'; 'vanthof@merope'
Subject: Re: proteus/baseplate

Fred Obermeier wrote ....
>
>Hi all,
>
>Custom_vdd_pad and custom_vdde_pad.ly cells contain the same
>information and map to the same cells on the space transformer.
>
>During the time calliope was being assembled, Geert agreed that we
>should only have one vdde pad, and we should call it vdde. All
>custom_vdd_pad instances were changed into custom_vdde_pad instances.
>When I grep /u/chip/calliope/compass/baseplate/*.ly, I do not see any
>references to

This won't do . The cell could be burried in the custom block layout .
A simple grep in compass/baseplate won't reveal anything .
A more reliable way to search is to use vlsimm to query the hierarchy .

>custom_vdd_pad. I also put a note in the Makefile saying that the
>custom_vdd_pad instance will no longer be supported (OLD). A while ago
>I removed the lines from the Makefile that map this instance.

The problem is none of this get communicated to the mask designer when they're doing the layout . I would even go one step further and remove the cell from the libary once we have a clean vlsimm search .

>
>We wanted to only have custom_vss_pad, custom_vdde_pad,
>custom_vdda_pad, sofa_vdd_pad and sofa_vss_pad cells.
>
>So, given the current situation, we could either:
> 1. Change all custom_vdd_pad to custom_vdde_pad as previously
>agreed, OR 2. Change the proteus/baseplate/Makefile.base back to support both
> vdd pads.
>
>Which do we want to do? Either change should be easy, but the second
>would perpetute the confusion over the two different named, but
>identical vdd pad cells.
>
>To implement solution 1 requires:
> foreach f (euterpe/compass/layouts)

This cell lives in proteus .

I'd like to have the layout changed . Could one of you privileged cad weenie who can lock/unlock layout cells do it and propagate the change to the proteus snapshot .

> sed 's/custom_vdd_pad/custom_vdde_pad/g' < $f > $f.tmp
> mv $f.tmp $f
> end
> cvs ci -m "Changed custom_vdd_pad to custom_vdde_pad"
>To implement solution 2 requires:
> cvs diff -r #.## -r #.## Makefile.base
> vi Makefile.base # to put back the changes
>
>Fred.

>

--

Tom Vo vo@microunity.com (408) 734-8100

From: tbe@MicroUnity.com

Sent: Sunday, November 06, 1994 1:29 AM

To: 'glen'

Cc: 'pmayer'; 'arya'; 'tbr'; 'woody'; 'albers'; 'jt'; 'vijay'

Subject: prt problems

We read in the Bandsplit daughtercard today and found that the prt you revised Friday night had the correct number of pins, but that the body had been increased to 3.4" from the correct 3.15" length, with the extra hanging out at the pin 1 end. This does not agree with the markup I gave you Friday; can you please rectify?

Separate issue: Pattie needs the new smart card prt as soon as possible Monday; please work with Vijay to obtain the necessary mechanical criteria and get to her Monday. Let me know if there are any obstacles.

Another separate issue: Tim wrote:

Patricia Mayer wrote (on Thu Nov 3):

> Another part issue that Philip mentioned was a fuducial mark for Caliope and Euterpe. ??

I think this was worked out for the TAB test board and as far as I know we said long ago we would go with the same. Maybe it never made it into the prt. I assume glen has a version in PCAD somewhere.

Tim

All parts less than (I believe) .050" pitch should have fiducials built into the prt. I thought this was addressed in the design guideline. Can you please review and ensure that this is the case. Calliope and Euterpe do have them in the TAB test board; so should the main pcb. Please get them into the prt.

Thanks,

-Tom

Tom Eich | tbe@microunity.com
MicroUnity Systems Engineering, Inc.|
255 Caspian Dr. Sunnyvale, CA 94089 |
(408)734-8100, (408)734-8136 fax |

From: Kurt Wampler [wampler@thoas]
Sent: Sunday, November 06, 1994 1:38 AM
To: 'tom@clio'
Cc: 'doi@nosferatu'; 'geert@merope'; 'hopper@boreas'; 'hopper@merope'; 'lisar@nosferatu'; 'tbr@merope'; 'tom@nosferatu'; 'vanthof@merope'; 'vo@merope'
Subject: Re: protection in s41

Tim Robinson writes:

>Well, I have to side with tom on this one. We have enough trouble with
>the complexity of what we are trying to do without planting timebombs.
>We are totally dependent on Make and doing something that deliberately
>defeats it is major error.

I bow to the majority. I have removed all "cp -p" statements from makefiles & shell scripts in:

proteus/clockbias
proteus/gardswarts/protowart
proteus/gards/basegen
proteus/gards/Makefile.chipbase
euterpe/verilog/bsrc/Makefile.share

I do beg to point out, however, that the problem we ran afoul of was not a date-based dependency error, but a permission violation that arose because group instead of owner permissions were being used. We may run into similar inconsistencies of implementation in other UNIX utilities if we start relying more often on group write permissions. It may be safer to do all of these builds as "chip".

- Kurt

From: Tim B. Robinson [tbr@aphrodite]
Sent: Sunday, November 06, 1994 1:49 AM
To: 'Kurt Wampler'
Cc: 'doi@nosferatu'; 'geert@merope'; 'hopper@boreas'; 'hopper@merope'; 'lisar@nosferatu'; 'tom@clio'; 'tom@nosferatu'; 'vanthof@merope'; 'vo@merope'
Subject: Re: protection in s41

Kurt Wampler wrote (on Sat Nov 5):

> Tim Robinson writes:
> ---
> >Well, I have to side with tom on this one. We have enough trouble
> >with the complexity of what we are trying to do without planting
> >timebombs. We are totally dependent on Make and doing something that
> >deliberately defeats it is major error.
>
> I bow to the majority. I have removed all "cp -p" statements from
> makefiles & shell scripts in:
>
> proteus/clockbias
> proteus/gardswarts/protowart
> proteus/gards/basegen
> proteus/gards/Makefile.chipbase
> euterpe/verilog/bsrc/Makefile.share

Thanks, kurt.

> I do beg to point out, however, that the problem we ran afoul of was
> not a date-based dependency error, but a permission violation that arose
> because group instead of owner permissions were being used. We may run
> into similar inconsistencies of implementation in other UNIX utilities if
> we start relying more often on group write permissions. It may be safer
> to do all of these builds as "chip".

I tend to agree. We also have the problem that not everyone has a umask of 2. In the proteus snapshot, I had updated an built a few things as myself, but I have now backed those out and rebuilt as chip.

The euterpe snapshot on the otherhand is mostly owned by non-chip and may be harder to clean up.

Tim

From: Mark Hofmann [hopper@boreas]
Sent: Sunday, November 06, 1994 11:22 AM
To: 'Tim B. Robinson'
Cc: 'wampler@thoas'; 'doi@nosferatu'; 'geert@merope'; 'hopper@merope'; 'lisar@nosferatu'; 'tom@clio'; 'tom@nosferatu'; 'vanthof@merope'; 'vo@merope'
Subject: Re: protection in s41

Tim B. Robinson writes:
> Kurt Wampler wrote (on Sat Nov 5):
> > Tim Robinson writes:
> > ---
> > >Well, I have to side with tom on this one. We have enough trouble
> > >with the complexity of what we are trying to do without planting
> > >timebombs. We are totally dependent on Make and doing something that
> > >deliberately defeats it is major error.
> >
> > I bow to the majority. I have removed all "cp -p" statements from
> > makefiles & shell scripts in:
> >
> > proteus/clockbias
> > proteus/gardswarts/protowart
> > proteus/gards/basegen
> > proteus/gards/Makefile.chipbase
> > euterpe/verilog/bsrc/Makefile.share
> Thanks, kurt.
>
> I do beg to point out, however, that the problem we ran afoul of was
> not a date-based dependency error, but a permission violation that arose
> because group instead of owner permissions were being used. We may run
> into similar inconsistencies of implementation in
> other UNIX utilities if
> we start relying more often on group write permissions. It may be safer
> to do all of these builds as "chip".
>
> I tend to agree. We also have the problem that not everyone has a
> umask of 2. In the proteus snapshot, I had updated an built a few
> things as myself, but I have now backed those out and rebuilt as
> chip.
>
> The euterpe snapshot on the otherhand is mostly owned by non-chip
> and may be harder to clean up.
>
> Tim

I'll add my voice here that we should make a rule to do all our builds as chip.
It is a simple and may avoid more of these permission problems in the future.
Once the sysadmins make the proper adjustments, everyone should be able to run as "chip"
for build purposes. Tom- could we build in an "su chip" to the build process?

-hopper

From: tbr
Sent: Sunday, November 06, 1994 3:19 PM
To: 'tom'; 'brinal'
Cc: 'hopper'
Subject: Makefile woes
Follow Up Flag: Follow up
Flag Status: Red

There is still a big problem. I now have the snapshot up to the latest BOM, so I have the latest Makefiles.

Starting friday, the make had run most of the timing numbers, but some died becuse of the problems on mercury and merope.

Then yesterday, I started it over with brian's new Makefile. It ran leafmold and built essentially all the cells. Then it went back into the timing phase and decided it had to retime everthing. According to brian, this was expected, given that leafmold had run. I actually interrupted that run after a while because at that point I wanted to pick up the latest Makefile stuff from kurt, and get a few things I had had to touch into the BOM.

Now when I restart it, it's decided to re-run leafmold on every damn cell (1548 again). What's going on? What are the dependencies involved here? Given that I did not let the timing run go to completion I can't think it's that that has caused the leafmold reset, because presumably it would only have affected a few cells.

There is a new log in

s41/euterpe-snapshot/euterpe/proteus/makerrs

and I cannot see anything unexpected prior to the leafmold run. It did however regenerate the Depend file just prior to the leafmold build.

Tim

From: tbr
Sent: Sunday, November 06, 1994 3:46 PM
To: 'tom'
Subject: 'vercon error'
Follow Up Flag: Follow up
Flag Status: Red

Any idea what this means?

```
** invoking vercon **
**********
Sun Nov 6 13:43:45 PST 19940m30s 0m30s
GARDS VERCON 7.120 -- Connectivity Verifier
Copyright (c) 1994 SILVAR-LISCO.  All rights reserved.
Design:  leaf   Started at:  94/11/06 13:43:45


VERCON Version 7.1.20 of March 30, 1994

...reading nets...
  49 Nets Read
...reading components...
  56 Components Read
...reading physical types...
  10 Physical Types Read
...reading logical types...
 **** routing progress = 0; no routing information in dff

Terminated at        : 94/11/06 13:43:45
Elapsed CPU time     : 0 Hrs  0 Mins  0 Secs
Elapsed wall clock time :  0 Hrs  0 Mins  0 Secs
*** gastatus detects error with vercon (see /usr/tmp/leafmold.xbmuxffe9dh12s)
gmake[4]: *** [/n/auspex/s23/euterpe-proteus-cp/compass/leaf/xbmuxffe9dh12s.ly] Error 1
```

From: Mark Hofmann [hopper@boreas]
Sent: Sunday, November 06, 1994 5:03 PM
To: 'Tim B. Robinson'
Cc: 'Thomas Laidig'; 'Brian Lee'
Subject: Re: Makefile woes

Tim B. Robinson writes:

[snip]

Now when I restart it, it's decided to re-run leafmold on every damn cell (1548 again). What's going on? What are the dependencies involved here? Given that I did not let the timing run go to completion I can't think it's that that has caused the leafmold reset, because presumably it would only have affected a few cells.

There is a new log in

s41/euterpe-snapshot/euterpe/proteus/makerrs

and I cannot see anything unexpected prior to the leafmold run. It did however regenerate the Depend file just prior to the leafmold build.

Tim

Nor can I, except that the Depend file did not exist.
Is it re-making all cells or only those that failed to route correctly last time? It looks like it's working on muxffe's and HR's.

-hopper

From: tbr
Sent: Sunday, November 06, 1994 5:06 PM
To: 'Mark Hofmann'
Cc: 'Brian Lee'; 'Thomas Laidig'
Subject: Re: Makefile woes
Follow Up Flag: Follow up
Flag Status: Red

Mark Hofmann wrote (on Sun Nov 6):

> Tim B. Robinson writes:
>
> > [snip]
> >
> > Now when I restart it, it's decided to re-run leafmold on every damn
> > cell (1548 again). What's going on? What are the dependencies involved
> > here? Given that I did not let the timing run go to completion
> > I can't think it's that that has caused the leafmold reset, because
> > presumably it would only have affected a few cells.
> >
> > There is a new log in
> >
> > s41/euterpe-snapshot/euterpe/proteus/makerrs
> >
> > and I cannot see anything unexpected prior to the leafmold run.
> > It did however regenerate the Depend file just prior to the leafmold
> > build.
> >
> > Tim
>
> Nor can I, except that the Depend file did not exist.
> Is it re-making all cells or only those that failed to route correctly
> last time? It looks like it's working on muxffe's and HR's.

It remade

```
5 -rw-rw-r--  1 chip       5066 Nov  6 13:17 xbor13df8s.ly
```

bit that's the only one. All the rest it tried failed again. I was assuming that since the list files called out all 155 it was going to do them all, but it didn't. Now it's back to timing.

Tim

From: Geert Rosseel [geert@rhea]
Sent: Sunday, November 06, 1994 5:29 PM
To: 'geert@rhea'
Subject: pager log, sender copy

```
page from geert to geert:
pageme gmake geert_euterpegards start:Nov_06_14:10 end: Nov_06_15:28 exit
1
```

From: vant [vanthof@hestia]

Sent: Sunday, November 06, 1994 8:49 PM

To: 'Tom Vo'

Cc: 'hopper@merope'; 'vanthof@merope'; 'wampler@merope'; 'geert@merope'; 'tbr@merope'; 'lisar@merope'; 'tom@merope'

Subject: Re: euterpe baseplate

Tom Vo writes:
>
>
>The build is completed . Results are in :
>
>/n/auspex/s41/euterpe-snapshot/euterpe/compass/baseplate/euterpe.ly .
>/n/auspex/s41/euterpe-snapshot/euterpe/verilog/bsrc/chip_euterpe-iter.splvs
>
>I looked at our 2 previous error spots , the gtlb cutout and the pll wiring short
>and they looked OK now .
>
>tvo
>

Thanks Tom, I'll start up the lvs and drc runs.
Dave

--
Dave Van't Hof vanthof@microunity.com MicroUnity Systems Engineering, Inc.
"What rolls down stairs, alone or in pairs, rolls over the neighbor's dog?
What's great for a snack and fits on your back? It's log, log, log!"
LOG from BLAMMO! (tm) All kids love Log! #incluce <std_disclaim.h>

From: Mark Hofmann [hopper@boreas]

Sent: Sunday, November 06, 1994 9:28 PM

To: 'vant'

Cc: 'vo@merope'; 'hopper@merope'; 'vanthof@merope'; 'wampler@merope'; 'geert@merope'; 'tbr@merope'; 'lisar@merope'; 'tom@merope'

Subject: Re: euterpe baseplate

vant writes:
>

Thanks Tom, I'll start up the lvs and drc runs.
Dave

Thanks, Dave
I see you've got them going.

-hopper

From: Fred Obermeier [fwo@pelagon]

Sent: Monday, November 07, 1994 2:33 AM

To: 'vo@merope'

Cc: 'fwo@pelagon'; 'geert@merope'; 'hopper@boreas'; 'hopper@merope'; 'tbr@merope'; 'vanthof@merope'

Subject: Re: proteus/baseplate

Hi,

> ... vlsimm to find all uses of custom_vdd_pad ..
Would it not be sufficient to change all uses of custom_vdd_pad to
custom_vdde_pad in all /u/chip/{proteus,calliope,euterpe}/compass/*/*.ly
files, except for /u/chip/proteus/compass/layouts/custom_vdd_pad.ly of
course? And then cvs remove /u/chip/proteus/compass/layouts/custom_vdd_pad.ly?
Does anyone see anything wrong with this?

Fred.

From: vant [vanthof@hestia]

Sent: Monday, November 07, 1994 8:20 AM

To: 'Fred Obermeier'

Cc: 'vo@merope'; 'fwo@pelagon'; 'geert@merope'; 'hopper@boreas'; 'hopper@merope'; 'tbr@merope'; 'vanthof@merope'

Subject: Re: proteus/baseplate

Fred Obermeier writes:
>
>Hi,
>
>> ... vlsimm to find all uses of custom_vdd_pad ..
>Would it not be sufficient to change all uses of custom_vdd_pad to
>custom_vdde_pad in all /u/chip/{proteus,calliope,euterpe}/compass/*/*.ly
>files, except for /u/chip/proteus/compass/layouts/custom_vdd_pad.ly of
>course? And then cvs remove /u/chip/proteus/compass/layouts/custom_vdd_pad.ly?
>Does anyone see anything wrong with this?
>
>Fred.
>

I believe this would invalidate the BOM entries for the cells which have
the custom_vdd_pad as instances. Tim gave a list of things which need to
be done to keep the BOM consistant.

Dave

--
Dave Van't Hof vanthof@microunity.com MicroUnity Systems Engineering, Inc.
"What rolls down stairs, alone or in pairs, rolls over the neighbor's dog?
What's great for a snack and fits on your back? It's log, log, log!"
LOG from BLAMMO! (tm) All kids love Log! #incluce <std_disclaim.h>

From: Alan Corry [agc@aphrodite]
Sent: Monday, November 07, 1994 9:46 AM
To: 'Geert Rosseel'
Subject: power.tab.local files for euterpe

I thought I should remind you that when we were working on euterpe a while ago alot of the power.tab.local (or genptab.pl) files had "init inst" changed to "inst" because topt at the top-level was powering up these outputs since the interconnecting modules were missing. Now you've got so much of the top level together you should make sure these drive strength settings are changed back to "init inst", if you haven't done so already ?

From: Tom Laidig [tom@clio]
Sent: Monday, November 07, 1994 10:33 AM
To: 'Tim B. Robinson'
Subject: Re: 'vercon error'

Tim B. Robinson writes:

|
|
|Any idea what this means?
|
|** invoking vercon **
|**********
|Sun Nov 6 13:43:45 PST 19940m30s 0m30s
|GARDS VERCON 7.120 -- Connectivity Verifier
|Copyright (c) 1994 SILVAR-LISCO. All rights reserved.
|Design: leaf Started at: 94/11/06 13:43:45
|
|
|VERCON Version 7.1.20 of March 30, 1994
|
|...reading nets...
| 49 Nets Read
|...reading components...
| 56 Components Read
|...reading physical types...
| 10 Physical Types Read
|...reading logical types...
| **** routing progress = 0; no routing information in dff
|
|Terminated at : 94/11/06 13:43:45
|Elapsed CPU time : 0 Hrs 0 Mins 0 Secs
|Elapsed wall clock time : 0 Hrs 0 Mins 0 Secs
|*** gastatus detects error with vercon (see /usr/tmp/leafmold.xbmuxffe9dh12s)
|gmake[4]: *** [/n/auspex/s23/euterpe-proteus-cp/compass/leaf/xbmuxffe9dh12s.ly] Error 1
|
|

That says it failed on that cell. The current incarnation of leafmold runs through a set of different routing strategies, deleting the routing from each failing attempt. Thus, if all attempts failed, the final vercon run will note no routing.

--
Tom L

From: Tom Laidig [tom@clio]
Sent: Monday, November 07, 1994 10:48 AM
To: 'Tim B. Robinson'
Cc: 'hopper@boreas'; 'brianl@boreas'; 'tom@boreas'
Subject: Re: Makefile woes

Tim B. Robinson writes:

> Mark Hofmann wrote (on Sun Nov 6):
>
> > Tim B. Robinson writes:
> >
> > [snip]
> >
> > Now when I restart it, it's decided to re-run leafmold on every damn
> > cell (1548 again). What's going on? What are the dependencies involved
> > here? Given that I did not let the timing run go to completion
> > I can't think it's that that has caused the leafmold reset, because
> > presumably it would only have affected a few cells.
> >
> > There is a new log in
> >
> > s41/euterpe-snapshot/euterpe/proteus/makerrs
> >
> > and I cannot see anything unexpected prior to the leafmold run.
> > It did however regenerate the Depend file just prior to the leafmold
> > build.
> >
> > Tim
>
> Nor can I, except that the Depend file did not exist.
> Is it re-making all cells or only those that failed to route correctly
> last time? It looks like it's working on muxffe's and HR's.
>
> It remade
>
> 5 -rw-rw-r-- 1 chip 5066 Nov 6 13:17 xbor13df8s.ly
>
> bit that's the only one. All the rest it tried failed again. I was
> assuming that since the list files called out all 155 it was going
> to do them all, but it didn't. Now it's back to timing.

The Depend file is always remade when you do a `gmake all'. This one cell probably got made because it had failed in all previous tries due to some soft error (the most common is not getting the edif license for slnet, which I have no good way to detect).

--
Tom L

From: Wayne Freitas [wayne@echidna]
Sent: Monday, November 07, 1994 11:20 AM
To: 'tbr@echidna'; 'graham@echidna'; 'jt@echidna'; 'mudge@echidna'
Cc: 'lisar@echidna'
Subject: Hardware Bring-up meeting

Hi, I would like to begin having a weekly hardware bring-up meeting for Hestia. The meeting will work in conjunction with the software bring-up meeting but focus more on the hardware side of PCA planning and requirements, bring-up status/problems, and hardware equipment and tool needs. I would like to hold this meeting during the beginning of the week, preferably Monday afternoon or Tuesday if possible, but I need to know what would be suitable for all of you. If you could provide a response with preference, or available time slot we can try and get this meeting going.

If it's not to much of a problem, I would also like to hold the meeting a different way. Where an agenda will be posted at least one working day (I count working weekends as a workday) before the scheduled meeting. If there isn't anything of high enough priority to justify a meeting, mail notes on action items or status will be posted and the meeting can be cancelled if agreed upon.

Thanks,

Wayne

From: lisa
Sent: Monday, November 07, 1994 11:37 AM
To: 'software-checkins-dist'
Subject: gnu-tools/sim/terp cerberus.c

```
Update of /p/cvsroot/gnu-tools/sim/terp
In directory calliope:/N/auspex/root/s6/lisa/src/gnu-tools/sim/terp

Modified Files:
      cerberus.c
Log Message:

Added some casts to make sure (constant << constant) didn't lose.
```

From: jt@MicroUnity.com
Sent: Monday, November 07, 1994 11:57 AM
To: 'Wayne Freitas'
Cc: 'lisar@echidna'; 'tbr@echidna'; 'graham@echidna'; 'mudge@echidna'
Subject: Re: Hardware Bring-up meeting

Wayne,

We should maintain some differentiation from the Monday 3pm netlist meeting. This can probably be handled by the posted agendas. How about Tuesday morning, 10:30 or 11:00?

-jt

At 9:19 AM 11/7/94 -0800, Wayne Freitas wrote:
> Hi, I would like to begin having a weekly hardware bring-up
> meeting for Hestia. The meeting will work in conjunction with the
> software bring-up meeting but focus more on the hardware side of PCA
> planning and requirements, bring-up status/problems, and hardware
> equipment and tool needs. I would like to hold this meeting during
> the beginning of the week, preferably Monday afternoon or Tuesday if
> possible, but I need to know what would be suitable for all of you.
> If you could provide a response with preference, or available time
> slot we can try and get this meeting going.
> If it's not to much of a problem, I would also like to hold the
> meeting a different way. Where an agenda will be posted at least one
> working day (I count working weekends as a workday) before the
> scheduled meeting. If there isn't anything of high enough priority
> to justify a meeting, mail notes on action items or status will be
> posted and the meeting can be cancelled if agreed upon.
>
> Thanks,
>
> Wayne

John Tang Internet: jt@microunity.com
MicroUnity Systems Engineering, Inc.
255 Caspian Dr. Sunnyvale, CA 94089
(408)734-8100, (408)734-8177 fax

From: tbr
Sent: Monday, November 07, 1994 12:01 PM
To: 'Wayne Freitas'
Cc: 'graham@echidna'; 'jt@echidna'; 'lisar@echidna'; 'mudge@echidna'
Subject: Hardware Bring-up meeting
Follow Up Flag: Follow up
Flag Status: Red

Wayne Freitas wrote (on Mon Nov 7):

> Hi, I would like to begin having a weekly hardware bring-up meeting for Hestia. The meeting will work in conjunction with the software bring-up meeting but focus more on the hardware side of PCA planning and requirements, bring-up status/problems, and hardware equipment and tool needs. I would like to hold this meeting during the beginning of the week, preferably Monday afternoon or Tuesday if possible, but I need to know what would be suitable for all of you. If you could provide a response with preference, or available time slot we can try and get this meeting going.
>
> If it's not to much of a problem, I would also like to hold the meeting a different way. Where an agenda will be posted at least one working day (I count working weekends as a workday) before the scheduled meeting. If there isn't anything of high enough priority to justify a meeting, mail notes on action items or status will be posted and the meeting can be cancelled if agreed upon.

I suggest Monday 4pm, right after the netlist meeting, but that may be a problem for lisar.

Tim

From: Fred Obermeier [fwo@pelagon]
Sent: Monday, November 07, 1994 1:03 PM
To: 'tbr@gamorra'; 'vo@merope'
Cc: 'fwo@pelagon'; 'geert@merope'; 'hopper@boreas'; 'vanthof@pelagon'
Subject: Re: proteus/baseplate

Only four cells use custom_vdd_pad: aftop, clrepeat, cr2a, cr3a.
Euterpe only makes use through: cr2a, and cr3a.

So, I'm going to change these four layout cells under proteus/layouts.
The automatic script under mdunit should do the cvs check-in.

Could someone do a release bom that really needs this? I'm not sure what else needs to be done by others.

Fred.

.

From: tbr
Sent: Monday, November 07, 1994 1:11 PM
To: 'Fred Obermeier'
Cc: 'fwo@pelagon'; 'geert@merope'; 'hopper@boreas'; 'vanthof@pelagon'; 'vo@merope'
Subject: Re: proteus/baseplate
Follow Up Flag: Follow up
Flag Status: Red

Fred Obermeier wrote (on Mon Nov 7):

> Only four cells use custom_vdd_pad: aftop, clrepeat, cr2a, cr3a.
> Euterpe only makes use through: cr2a, and cr3a.
>
> So, I'm going to change these four layout cells under proteus/layouts.
> The automatic script under mdunit should do the cvs check-in.
>
> Could someone do a release bom that really needs this? I'm not sure
> what else needs to be done by others.

Are we all happy this does not invalidate the baseplate runs currently in progress?

Tim

From: Tim B. Robinson [tbr@aphrodite]
Sent: Monday, November 07, 1994 1:11 PM
To: 'Fred Obermeier'
Cc: 'fwo@pelagon'; 'geert@merope'; 'hopper@boreas'; 'vanthof@pelagon'; 'vo@merope'
Subject: Re: proteus/baseplate

Fred Obermeier wrote (on Mon Nov 7):

> Only four cells use custom_vdd_pad: aftop, clrepeat, cr2a, cr3a.
> Euterpe only makes use through: cr2a, and cr3a.
>
> So, I'm going to change these four layout cells under proteus/layouts.
> The automatic script under mdunit should do the cvs check-in.
>
> Could someone do a release bom that really needs this? I'm not sure
> what else needs to be done by others.

Are we all happy this does not invalidate the baseplate runs currently in progress?

Tim

From: Mark Hofmann [hopper@boreas]
Sent: Monday, November 07, 1994 1:16 PM
To: 'Tim B. Robinson'
Cc: 'fwo@pelagon'; 'geert@merope'; 'vanthof@pelagon'; 'vo@merope'
Subject: Re: proteus/baseplate

Tim B. Robinson writes:
> Fred Obermeier wrote (on Mon Nov 7):
>
> > Only four cells use custom_vdd_pad: aftop, clrepeat, cr2a, cr3a.
> > Euterpe only makes use through: cr2a, and cr3a.
> >
> > So, I'm going to change these four layout cells under proteus/layouts.
> > The automatic script under mdunit should do the cvs check-in.
> >
> > Could someone do a release bom that really needs this? I'm not sure
> > what else needs to be done by others.
>
> Are we all happy this does not invalidate the baseplate runs currently
> in progress?
>
> Tim

I just spoke with tvo and fwo. The current baseplate runs (Fracture and DRC) should be consistent and correct since they were run of the old Makefile and used the old cell.

Fred will make these changes and check them in but not release them.

If the DRC comes back dirty and we need to make changes then we'll batch the pad changes in with the other changes and release a new snapshot.

If the DRC comes back clean, we have the option then of doing a release to add in the renamed pads or wait to batch again with other changes.

-hopper

From: Tom Vo [vo@merope]
Sent: Monday, November 07, 1994 1:20 PM
To: 'Tim B. Robinson'
Cc: 'fwo@pelagon'; 'geert@merope'; 'hopper@boreas'; 'vanthof@pelagon'
Subject: Re: proteus/baseplate

Tim B. Robinson wrote ....
>
>
>Fred Obermeier wrote (on Mon Nov 7):
>
> Only four cells use custom_vdd_pad: aftop, clrepeat, cr2a, cr3a.
> Euterpe only makes use through: cr2a, and cr3a.
>
> So, I'm going to change these four layout cells under proteus/layouts.
> The automatic script under mdunit should do the cvs check-in.
>
> Could someone do a release bom that really needs this? I'm not sure
> what else needs to be done by others.
>
>Are we all happy this does not invalidate the baseplate runs currently
>in progress?
>
>Tim
>
>

We're all getting cold feet here . In light of the recently discovered fact that the snapshot proteus/baseplate/Makefile.base is one rev behind and what we have in the snapshot is really consistent wrt this problem (a case of 2 wrongs makes right) , it's agreed that we'll perform the fix and check them in , but delay the decision to propagate the changes to the snapshot until we see results from the drc run .

--
Tom Vo vo@microunity.com (408) 734-8100

From: Tom Laidig [tom@clio]
Sent: Monday, November 07, 1994 3:58 PM
To: 'Kurt Wampler'
Cc: 'Thomas Laidig'; 'Daniel Albers'; 'Dave Van't Hof'; 'Mark Hofmann'; 'Tim B. Robinson'; 'Geert Rosseel'; 'Tom Vo'
Subject: frame updated in euterpe snapshot

I have just updated the euterpe snapshot to include the frame. I did this by doing a getbom in

```
    euterpe/proteus/compass/frame
      added the files:
          p611_allv5.ly
          p611_allv6.ly
          p611_etch_l1v1.ly
          p611_etch_l2v1.ly
          p611_etch_l3v1.ly
          p611_etch_l4v1.ly
          p611_etch_l5v1.ly
          p611_etch_l6v1.ly
          p611_etch_l7v1.ly
          p611_etch_lv1.ly
          p611_etch_r1v1.ly
          p611_etch_r2v1.ly
          p611_etch_r3v1.ly
          p611_etch_r4v1.ly
          p611_etch_r5v1.ly
          p611_etch_r6v1.ly
          p611_etch_r7v1.ly
          p611_etch_rv1.ly
          p611_etch_v1.ly
          p611_foc010v5.ly
          p611_foc010v6.ly
          p611_foc020v5.ly
          p611_foc020v6.ly
          p611_foc030v5.ly
          p611_foc030v6.ly
          p611_foc040v5.ly
          p611_foc040v6.ly
          p611_foc050v5.ly
          p611_foc050v6.ly
          p611_foc060v5.ly
          p611_foc060v6.ly
          p611_foc070v5.ly
          p611_foc070v6.ly
          p611_foc080v5.ly
          p611_foc080v6.ly
          p611_foc090v5.ly
          p611_foc090v6.ly
          p611_foc100v5.ly
          p611_foc100v6.ly
          p611_foc110v5.ly
          p611_foc110v6.ly
          p611_foc120v5.ly
          p611_foc120v6.ly
          p611_foc130v5.ly
          p611_foc130v6.ly
          p611_foc140v5.ly
          p611_foc140v6.ly
          p611_foc150v5.ly
          p611_foc150v6.ly
          p611_foc160v5.ly
          p611_foc160v6.ly
          p611_foc170v5.ly
```

```
        p611_foc170v6.ly
        p611_foc180v5.ly
        p611_foc180v6.ly
        p611_foc190v5.ly
        p611_foc190v6.ly
        p611_foc200v5.ly
        p611_foc200v6.ly
        p611_foc210v5.ly
        p611_foc210v6.ly
        p611_foc220v5.ly
        p611_foc220v6.ly
        p611_fochorzv5.ly
        p611_fochorzv6.ly
        p611_focvertv5.ly
        p611_focvertv6.ly

      modified the files:
        locked-cells
        proteusframe.db
        vlsi.cko
        vlsi.log

    euterpe/compass/layouts
      modified the files:
        f0007.ly
```

So I think we can start fracturing the frame any time.

None of the above cells appears in the chip layout hierarchy, so the ongoing chip DRC, LVS, and fracture should be unaffected.

--

```
    ooooO   Ooooo
    (  _)   (_  )
    | (  Tom  ) |
    (__)  L  (__)
```

From: Daniel Albers [albers@boreas]

Sent: Monday, November 07, 1994 4:05 PM

To: 'Tom Laidig'

Cc: 'wampler@clio'; 'tom@clio'; 'albers@clio'; 'vanthof@clio'; 'hopper@clio'; 'tbr@clio'; 'geert@clio'; 'vo@clio'

Subject: Re: frame updated in euterpe snapshot

> the words of Tom Laidig:
>
> I have just updated the euterpe snapshot to include the frame. I did
> this by doing a getbom in
>
> euterpe/proteus/compass/frame
>
> ....
>
> So I think we can start fracturing the frame any time.
>
> None of the above cells appears in the chip layout hierarchy, so the
> ongoing chip DRC, LVS, and fracture should be unaffected.
>

Everything looks right.
Thanks,
Dan

–
Daniel Albers albers@microunity.com MicroUnity Systems Engineering, Inc.
255 Caspian Way, Sunnyvale, CA (408) 734-8100

It can be made into a monster if we all pull together as a team...

From: Mark Hofmann [hopper@boreas]

Sent: Monday, November 07, 1994 4:46 PM

To: 'Tom Laidig'

Cc: 'wampler@clio'; 'tom@clio'; 'albers@clio'; 'vanthof@clio'; 'hopper@clio'; 'tbr@clio'; 'geert@clio'; 'vo@clio'

Subject: Re: frame updated in euterpe snapshot

Tom Laidig writes:
I have just updated the euterpe snapshot to include the frame. I did this by doing a getbom in

euterpe/proteus/compass/frame
added the files:

[snip]

modified the files:
locked-cells
proteusframe.db
vlsi.cko
vlsi.log

euterpe/compass/layouts
modified the files:
f0007.ly

So I think we can start fracturing the frame any time.

None of the above cells appears in the chip layout hierarchy, so the ongoing chip DRC, LVS, and fracture should be unaffected.

Thanks, Tom

-hopper

From: tbr

Sent: Monday, November 07, 1994 9:16 PM

To: 'Tom Laidig'

Cc: 'Daniel Albers'; 'Geert Rosseel'; 'Mark Hofmann'; 'Thomas Laidig'; 'Dave Van't Hof'; 'Tom Vo'; 'Kurt Wampler'

Subject: frame updated in euterpe snapshot

Follow Up Flag: Follow up

Flag Status: Red

Tom Laidig wrote (on Mon Nov 7):

I have just updated the euterpe snapshot to include the frame. I did this by doing a getbom in

euterpe/proteus/compass/frame
added the files:
p611_allv5.ly
p611_allv6.ly
p611_etch_l1v1.ly
p611_etch_l2v1.ly
p611_etch_l3v1.ly
p611_etch_l4v1.ly
p611_etch_l5v1.ly
p611_etch_l6v1.ly
p611_etch_l7v1.ly
p611_etch_lv1.ly
p611_etch_r1v1.ly
p611_etch_r2v1.ly
p611_etch_r3v1.ly
p611_etch_r4v1.ly
p611_etch_r5v1.ly
p611_etch_r6v1.ly
p611_etch_r7v1.ly
p611_etch_rv1.ly
p611_etch_v1.ly
p611_foc010v5.ly
p611_foc010v6.ly
p611_foc020v5.ly
p611_foc020v6.ly
p611_foc030v5.ly
p611_foc030v6.ly
p611_foc040v5.ly
p611_foc040v6.ly
p611_foc050v5.ly
p611_foc050v6.ly
p611_foc060v5.ly
p611_foc060v6.ly
p611_foc070v5.ly
p611_foc070v6.ly
p611_foc080v5.ly
p611_foc080v6.ly
p611_foc090v5.ly
p611_foc090v6.ly

p611_foc100v5.ly
p611_foc100v6.ly
p611_foc110v5.ly
p611_foc110v6.ly
p611_foc120v5.ly
p611_foc120v6.ly
p611_foc130v5.ly
p611_foc130v6.ly
p611_foc140v5.ly
p611_foc140v6.ly
p611_foc150v5.ly
p611_foc150v6.ly
p611_foc160v5.ly
p611_foc160v6.ly
p611_foc170v5.ly
p611_foc170v6.ly
p611_foc180v5.ly
p611_foc180v6.ly
p611_foc190v5.ly
p611_foc190v6.ly
p611_foc200v5.ly
p611_foc200v6.ly
p611_foc210v5.ly
p611_foc210v6.ly
p611_foc220v5.ly
p611_foc220v6.ly
p611_fochorzv5.ly
p611_fochorzv6.ly
p611_focvertv5.ly
p611_focvertv6.ly

modified the files:
locked-cells
proteusframe.db
vlsi.cko
vlsi.log

euterpe/compass/layouts
modified the files:
f0007.ly

So I think we can start fracturing the frame any time.

None of the above cells appears in the chip layout hierarchy, so the ongoing chip DRC, LVS, and fracture should be unaffected.

As soon as the current proteus build completes (est tomorrow evening) we should look at bringing over the latest BOM from the top level and re-running the Make. I assume this will not have any effect on the fram stuff.

Tim

From: Tim B. Robinson [tbr@aphrodite]
Sent: Monday, November 07, 1994 9:16 PM
To: 'Tom Laidig'
Cc: 'Daniel Albers'; 'Geert Rosseel'; 'Mark Hofmann'; 'Thomas Laidig'; 'Dave Van't Hof'; 'Tom Vo'; 'Kurt Wampler'
Subject: frame updated in euterpe snapshot

Tom Laidig wrote (on Mon Nov 7):

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euterpe/proteus/compass/frame
added the files:

```
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p611_allv6.ly
p611_etch_l1v1.ly
p611_etch_l2v1.ly
p611_etch_l3v1.ly
p611_etch_l4v1.ly
p611_etch_l5v1.ly
p611_etch_l6v1.ly
p611_etch_l7v1.ly
p611_etch_lv1.ly
p611_etch_r1v1.ly
p611_etch_r2v1.ly
p611_etch_r3v1.ly
p611_etch_r4v1.ly
p611_etch_r5v1.ly
p611_etch_r6v1.ly
p611_etch_r7v1.ly
p611_etch_rv1.ly
p611_etch_v1.ly
p611_foc010v5.ly
p611_foc010v6.ly
p611_foc020v5.ly
p611_foc020v6.ly
p611_foc030v5.ly
p611_foc030v6.ly
p611_foc040v5.ly
p611_foc040v6.ly
p611_foc050v5.ly
p611_foc050v6.ly
p611_foc060v5.ly
p611_foc060v6.ly
p611_foc070v5.ly
p611_foc070v6.ly
p611_foc080v5.ly
p611_foc080v6.ly
p611_foc090v5.ly
p611_foc090v6.ly
p611_foc100v5.ly
p611_foc100v6.ly
p611_foc110v5.ly
p611_foc110v6.ly
p611_foc120v5.ly
p611_foc120v6.ly
p611_foc130v5.ly
p611_foc130v6.ly
p611_foc140v5.ly
p611_foc140v6.ly
p611_foc150v5.ly
p611_foc150v6.ly
```

```
            p611_foc160v5.ly
            p611_foc160v6.ly
            p611_foc170v5.ly
            p611_foc170v6.ly
            p611_foc180v5.ly
            p611_foc180v6.ly
            p611_foc190v5.ly
            p611_foc190v6.ly
            p611_foc200v5.ly
            p611_foc200v6.ly
            p611_foc210v5.ly
            p611_foc210v6.ly
            p611_foc220v5.ly
            p611_foc220v6.ly
            p611_fochorzv5.ly
            p611_fochorzv6.ly
            p611_focvertv5.ly
            p611_focvertv6.ly

        modified the files:
            locked-cells
            proteusframe.db
            vlsi.cko
            vlsi.log

    euterpe/compass/layouts
        modified the files:
            f0007.ly

So I think we can start fracturing the frame any time.

None of the above cells appears in the chip layout hierarchy, so the
ongoing chip DRC, LVS, and fracture should be unaffected.

As soon as the current proteus build completes (est tomorrow evening) we should look at
bringing over the latest BOM from the top level
and re-running the Make.   I assume this will not have any effect on
the fram stuff.

Tim
```

.

From: tbr
Sent: Tuesday, November 08, 1994 12:05 AM
To: 'doi'
Cc: 'lisar'
Subject: releasebom
Follow Up Flag: Follow up
Flag Status: Red

I got the following on releasing a BOM which I don't recall seeing before.
Does it indicate some sort of error?

Note: Forced Release of BOM in euterpe/verilog/bsrc Version 172.0

Tim

From: tbr
Sent: Tuesday, November 08, 1994 1:05 AM
To: 'geert'
Cc: 'brianl'; 'woody'; 'dickson'; 'hopper'; 'vo'
Subject: snapshot status
Follow Up Flag: Follow up
Flag Status: Red

I have updated the euterpe snapshot to BOM 172.0, which includes everything except the most recent change to nb.

The following placements are incomplete:

at, icc, ife, iq, uu

(uu was not complete before). nb was also updated, but per hopper's latest placement message, I expect this to converge OK. It is running now.

The only other logic change was in Cerberus.

Tim

From: Tim B. Robinson [tbr@aphrodite]
Sent: Tuesday, November 08, 1994 1:05 AM
To: 'geert@aphrodite'
Cc: 'brianl@aphrodite'; 'woody@aphrodite'; 'dickson@aphrodite'; 'hopper@aphrodite'; 'vo@aphrodite'
Subject: snapshot status

I have updated the euterpe snapshot to BOM 172.0, which includes everything except the most recent change to nb.

The following placements are incomplete:

at, icc, ife, iq, uu

(uu was not complete before). nb was also updated, but per hopper's latest placement message, I expect this to converge OK. It is running now.

The only other logic change was in Cerberus.

Tim

From: Jay Tomlinson [woody@luckboy]
Sent: Tuesday, November 08, 1994 9:13 AM
To: 'euterpe@luckboy'
Cc: 'bobm@luckboy'
Subject: FINAL Decision: instruction cache tag bit change

This decision is now final.
jay
Jay Tomlinson wrote (on Thu Nov 3):

The current micro-arch doc defines the bits of the instruction cache tag as follows:

bit	meaning
7	Caching control, exception 3 if set
6	Detail access, exception 2 if set
5..2	ignored by hardware
1..0	Execution access, causes exception 1 if > privilege level

I propose changing the location of the Execution Access field to allow the hardware to use bit 0 as a valid bit (bit 0 of the data cache tag is the defined as the dirty-bit). This change would speed up the I-cache miss processing by allowing the hardware to invalidate the tag entry without having to write the entire entry. This change will also simplify the euterpe hardware. The tag array has a write-enable for this bit.

My proposal for the new bit definitions is:

bit	meaning
7	Caching control, exception 3 if set
6	Detail access, exception 2 if set
5..4	ignored by hardware
3..2	Execution access, causes exception 1 if > privilege level
1	ignored by hardware
0	valid

This change will become final at 11:59PM Monday, Nov 7, 1994.
Objections should be sent out immediately and can be reviewed Friday/Monday.

Jay

From: Derek Iverson [doi@demeter]
Sent: Tuesday, November 08, 1994 10:17 AM
To: 'Tim B. Robinson'
Cc: 'doi@aphrodite'; 'lisar@aphrodite'
Subject: releasebom

Tim B. Robinson writes:
>
> I got the following on releasing a BOM which I don't recall seeing
> before.
> Does it indicate some sort of error?
>
> Note: Forced Release of BOM in euterpe/verilog/bsrc Version 172.0

I added this message to remind people that use the -F option that
even though the output from releasebom said the BOM was unchanged
at the top level, it was forced as a release.

I, of course, had a bug in that I *always* printed it. sigh.

fixed.

doi

From: lisa
Sent: Tuesday, November 08, 1994 12:29 PM
To: 'software-checkins-dist'
Subject: gnu-tools/sim/terp cycles.h

```
Update of /p/cvsroot/gnu-tools/sim/terp
In directory calliope:/N/auspex/root/s6/lisa/src/gnu-tools/sim/terp

Modified Files:
      cycles.h
Log Message:

Added ZSTALL to those needing "adjustment".
```

From: lisa
Sent: Tuesday, November 08, 1994 12:30 PM
To: 'software-checkins-dist'
Subject: gnu-tools/sim/terp events.c

```
Update of /p/cvsroot/gnu-tools/sim/terp
In directory calliope:/N/auspex/root/s6/lisa/src/gnu-tools/sim/terp

Modified Files:
      events.c
Log Message:

Clear last_regs and last_thread in do_exception() -- the current instruction should not
get a register trace.
```

From: tbr
Sent: Tuesday, November 08, 1994 12:53 PM
To: 'Derek Iverson'
Cc: 'doi@aphrodite'; 'lisar@aphrodite'
Subject: releasebom
Follow Up Flag: Follow up
Flag Status: Red

Derek Iverson wrote (on Tue Nov 8):

> Tim B. Robinson writes:
> >
> > I got the following on releasing a BOM which I don't recall seeing
> > before.
> > Does it indicate some sort of error?
> >
> > Note: Forced Release of BOM in euterpe/verilog/bsrc Version 172.0
>
> I added this message to remind people that use the -F option that
> even though the output from releasebom said the BOM was unchanged
> at the top level, it was forced as a release.
>
> I, of course, had a bug in that I *always* printed it. sigh.
>
> fixed.

Thanks.

Tim

From: Mark Hofmann [hopper@tomato]

Sent: Tuesday, November 08, 1994 1:30 PM

To: 'vant'

Cc: 'hopper@hestia'; 'tom@hestia'; 'vanthof@hestia'; 'tbr@hestia'

Subject: Re: euterpe and cache drc tests

vant writes:

> The upper drc's on euterpe came back clean. It took 40 hours instead of the normal 64 hours (on a sparc 10). Not a dramatic improvement, but still significant. The 40 hour run was with 1 dracula and 1 vlsimm thread. The dracula thread took about 19 hours and the vlsimm thread took the 40. I've now started up another test with the vlsimm thread split into two processes on trex. I'm hoping the two processes will finish in under 30 hours, but it's hard to guage at this time. once these finish, we can look at splitting the flow up into more parallel segments to try and balance out the 19 hour dracula run with multiple vlsimm runs.
>
> The lower drc's are much more dracula limited and splitting these up into more than 2 parts is probably not as profitable.
>
> I've also started an all layer drc run on the cache using 1 dracula license and 4 vlsimm processes.
>
> I've got both processes on all 4 dracula machines busy with these tests and real drc's.
>
> Confusing, but if this all works, then it means we could really split up the drc's across as many as 7 processors or more with some tuning.
>
> I'll keep ya posted.
>
> Thanks,
> Dave

Neat. (But now I've lost my gards machine [:-( ]. Perhaps it's time to look into more sparc10 hardware.)

-hopper

From: lisa
Sent: Tuesday, November 08, 1994 6:58 PM
To: 'software-checkins-dist'
Subject: gnu-tools/sim/terp cycles.c

```
Update of /p/cvsroot/gnu-tools/sim/terp
In directory calliope:/N/auspex/root/s6/lisa/src/gnu-tools/sim/terp

Modified Files:
      cycles.c
Log Message:

Change BRANCHX latency to 2 (which is time from bback issue to r1 available).
```

From: lisa
Sent: Tuesday, November 08, 1994 7:00 PM
To: 'software-checkins-dist'
Subject: gnu-tools/sim/terp execute.c

```
Update of /p/cvsroot/gnu-tools/sim/terp
In directory calliope:/N/auspex/root/s6/lisa/src/gnu-tools/sim/terp

Modified Files:
      execute.c
Log Message:

A bback takes 6 major cycles from its issue to issue of next insn.
```

From: lisa
Sent: Tuesday, November 08, 1994 7:01 PM
To: 'software-checkins-dist'
Subject: gnu-tools/sim/terp events.c

```
Update of /p/cvsroot/gnu-tools/sim/terp
In directory calliope:/N/auspex/root/s6/lisa/src/gnu-tools/sim/terp

Modified Files:
      events.c
Log Message:

In do_interrupt(), do a register trace for the setting of r1.
```

From: lisa
Sent: Tuesday, November 08, 1994 7:02 PM
To: 'software-checkins-dist'
Subject: gnu-tools/sim/terp decode.c

```
Update of /p/cvsroot/gnu-tools/sim/terp
In directory calliope:/N/auspex/root/s6/lisa/src/gnu-tools/sim/terp

Modified Files:
      decode.c
Log Message:

Make bback show r1 as a destination so register traces and dependencies are properly
handled.
```

From: vant [vanthof@hestia]

Sent: Tuesday, November 08, 1994 8:10 PM

To: 'Mark Hofmann'; 'Thomas Laidig'

Cc: 'Dave Van't Hof'; 'Tim B. Robinson'

Subject: *euterpe and cache drc tests*

The upper drc's on euterpe came back clean. It took 40 hours instead of the normal 64 hours (on a sparc 10). Not a dramatic improvement, but still significant. The 40 hour run was with 1 dracula and 1 vlsimm thread. The dracula thread took about 19 hours and the vlsimm thread took the 40. I've now started up another test with the vlsimm thread split into two processes on trex. I'm hoping the two processes will finish in under 30 hours, but it's hard to guage at this time. once these finish, we can look at splitting the flow up into more parallel segments to try and balance out the 19 hour dracula run with multiple vlsimm runs.

The lower drc's are much more dracula limited and splitting these up into more than 2 parts is probably not as profitable.

I've also started an all layer drc run on the cache using 1 dracula license and 4 vlsimm processes.

I've got both processes on all 4 dracula machines busy with these tests and real drc's.

Confusing, but if this all works, then it means we could really split up the drc's across as many as 7 processors or more with some tuning.

I'll keep ya posted.

Thanks,
Dave
--
Dave Van't Hof vanthof@microunity.com MicroUnity Systems Engineering, Inc.
"What rolls down stairs, alone or in pairs, rolls over the neighbor's dog?
What's great for a snack and fits on your back? It's log, log, log!"
LOG from BLAMMO! (tm) All kids love Log! #incluce <std_disclaim.h>

From: vant [vanthof@hestia]

Sent: Tuesday, November 08, 1994 10:29 PM

To: 'Mark Hofmann'

Cc: 'Thomas Laidig'; 'Tim B. Robinson'; 'Dave Van't Hof'

Subject: Re: euterpe and cache drc tests

Mark Hofmann writes:
>
>Neat. (But now I've lost my gards machine [:-( ]. Perhaps it's time to
>look into more sparc10 hardware.)
>
>-hopper
>

I'm hoping the job on tomato will be done early this morning, so you can have it back tomorrow :-)

These studies will pay off in the future as it will help in optimizing the run times to keep the drc runs short. one thing i've already seen from running the cache is the upper checks take longer than the lower because of the pedestals. It might be really beneficial to split the metals checks into 3 or 4 threads instead of the current 2.

Thanks,
Dave

--
Dave Van't Hof vanthof@microunity.com MicroUnity Systems Engineering, Inc.
"What rolls down stairs, alone or in pairs, rolls over the neighbor's dog?
What's great for a snack and fits on your back? It's log, log, log!"
LOG from BLAMMO! (tm) All kids love Log! #incluce <std_disclaim.h>

From: tbr
Sent: Wednesday, November 09, 1994 12:18 AM
To: 'Mark Hofmann'
Subject: Re: euterpe and cache drc tests
Follow Up Flag: Follow up
Flag Status: Red

Mark Hofmann wrote (on Tue Nov 8):

vant writes:
The upper drc's on euterpe came back clean. It took 40 hours instead of the normal 64 hours (on a sparc 10). Not a dramatic improvement, but still significant. The 40 hour run was with 1 dracula and 1 vlsimm thread. The dracula thread took about 19 hours and the vlsimm thread took the 40. I've now started up another test with the vlsimm thread split into two processes on trex. I'm hoping the two processes will finish in under 30 hours, but it's hard to guage at this time. once these finish, we can look at splitting the flow up into more parallel segments to try and balance out the 19 hour dracula run with multiple vlsimm runs.

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I'll keep ya posted.

Thanks,
Dave

Neat. (But now I've lost my gards machine [:-( ]. Perhaps it's time to look into more sparc10 hardware.)

Better start some serious budget planning for 95. We are already way over.

We have ordered an evaluation of a 90MHz dual sparc module (eta 4 weeks) and according to don there is expected to be an announcement from sun in the next week or so of 100MHz modules. (The ones we have now are 50MHz I think). So there is a possibility of a significant speedup at modest cost.

Tim

.

From: Mark Hofmann [hopper@tomato]
Sent: Wednesday, November 09, 1994 12:37 AM
To: 'Tim B. Robinson'
Cc: 'hopper@aphrodite'; 'doi@aphrodite'
Subject: Re: verilog

Tim B. Robinson writes:

> Scanning library directory "/n/auspex/s15/tbr/euterpe/proteus/verilog/clib"
> /bin/sh: 14141 Bus error
> gmake: *** [bsim] Error 138
> tbr@gamorra ~/euterpe/verilog/bsrc 472 % cname
> da-verilog-grx
>
> Which version are we getting by default? I've not seen core dumps
> before.

we should be back to getting the verilog1.7 version (which we've run for about a year) by default.

Dickson had several core dumps from gmake on gammora. We have traced this to panics and hard errors on Gamorra's disks. It looks like you may have been on gamorra at the time. could you re-try from another machine?

-thanks,
hopper

From: Mark Hofmann [hopper@tomato]
Sent: Wednesday, November 09, 1994 12:42 AM
To: 'Tim B. Robinson'
Subject: Re: euterpe and cache drc tests

Tim B. Robinson writes:

> Better start some serious budget planning for 95. We are already way over.
>
> We have ordered an evaluation of a 90MHz dual sparc module (eta 4 weeks) and according to don there is expected to be an announcement from sun in the next week or so of 100MHz modules. (The ones we have now are 50MHz I think). So there is a possibility of a significant speedup at modest cost.

Okay.
I don't have any idea what the '95 budget looks like.

I think we should plan on needing more hardware, especially as we will have multiple chips in design, verification, and fracture/tapeout.

I would approach this by saying that we will be able to offset our hardware purchases by some amount as we reduce our software (CAD) costs by moving to our own home-grown tools.

Should we meet to discuss this further?

-hopper

From: tbr
Sent: Wednesday, November 09, 1994 7:58 AM
To: 'hopper'; 'doi'
Subject: verilog
Follow Up Flag: Follow up
Flag Status: Red

Scanning library directory "/n/auspex/s15/tbr/euterpe/proteus/verilog/clib"
/bin/sh: 14141 Bus error
gmake: *** [bsim] Error 138
tbr@gamorra ~/euterpe/verilog/bsrc 472 % cname
da-verilog-grx

Which version are we getting by default? I've not seen core dumps before.

Tim

From: tbr
Sent: Wednesday, November 09, 1994 10:21 AM
To: 'Mark Hofmann'
Cc: 'doi@aphrodite'; 'sysadminhopper@aphrodite'
Subject: Re: verilog
Follow Up Flag: Follow up
Flag Status: Red

Mark Hofmann wrote (on Wed Nov 9):

> Tim B. Robinson writes:
>
> > Scanning library directory "/n/auspex/s15/tbr/euterpe/proteus/verilog/clib"
> > /bin/sh: 14141 Bus error
> > gmake: *** [bsim] Error 138
> > tbr@gamorra ~/euterpe/verilog/bsrc 472 % cname
> > da-verilog-grx
> >
> > Which version are we getting by default? I've not seen core dumps
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>
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>
> Dickson had several core dumps from gmake on gammora. We have traced this to panics and hard errors on Gamorra's disks. It looks like you may have been on gamorra at the time. could you re-try from another machine?

OK, will do.

Tim

From: B. P. Wong [bpw@frodo]
Sent: Wednesday, November 09, 1994 11:30 AM
To: 'mnemo@frodo'
Cc: 'bpw@frodo'
Subject: Re: FINAL DECISION: PCI driver

> IMMINENT DECISION:
>
> We have decided to use the IDT FCT buffer P.N. IDT74FCT164245T as the
> PCI driver. We will then use the current euterpe I/O buffer as the
> mnemo I/O buffer even for the PCI bus. The PCI bus will be buffered
> by the IDT74FCT164245T.
>
> Date for Final DECISION is set at Wednesday, Nov 9, 1994 at 8:00am if
> there is no objection to this proposal.
>
> bpw
>

Since there was no explicit objections the decision as stated is considered final and will be implemented using the IDT74FCT164245T or an equivalent.

bpw

From: Manoj Puri [puri@MicroUnity.com]
Sent: Wednesday, November 09, 1994 12:34 PM
To: 'abbott (Curtis Abbott)'
Subject: Re: gnu-tools/sim/terp/calliope cable-in.c

```
>
>    Newsgroups: muse.checkins.software
>    From: puri@MicroUnity.com (Manoj Puri)
>    Distribution: local
>    Organization: posters R us
>    Date: 4 Nov 94 23:55:06 GMT
>
>    Update of /p/software-src/gnu-tools/sim/terp/calliope
>    In directory
mp:/N/auspex/root/s19/puri/root/gnu-tools/sim/terp/calliope
>
>    Modified Files:
>        cable-in.c
>    Log Message:
>        This update includes a fix for IQ-imbalance problems and also
includes henry's timing code.
>
> Given that this is linked into the calliope simulator, I don't
> understand why it would include Henry's timing code.  Can you explain?
>
> - Curtis
>

      What I have is the "dsplib" version of his timing code, I don't think he has any
terp version ready.
                  Manoj
```

From: abbott
Sent: Wednesday, November 09, 1994 12:59 PM
To: 'Manoj Puri'
Subject: Re: gnu-tools/sim/terp/calliope cable-in.c

You don't seem to have understood my question. Timing code is simulating software that will be running on Euterpe in a Hestia system. Code in the .../gnu-tools/sim/terp/calliope is simulating hardware that's part of Calliope.

I think I figured out the answer to my question: you're using cable-in.c to run your simulations in addition to the hardware simulation. I see you've got a very non-standard setup for this, Makefile-wise, but I guess I see what's going on.

- Curtis

From: lisa
Sent: Wednesday, November 09, 1994 3:19 PM
To: 'software-checkins-dist'
Subject: gnu-tools/sim/terp events.c execloop.c execute.c run.c simgdb.c stats.c stats.h stbgateway.c terp.h uv.c uv.h

```
Update of /p/cvsroot/gnu-tools/sim/terp
In directory calliope:/N/auspex/root/s6/lisa/src/gnu-tools/sim/terp

Modified Files:
      events.c execloop.c execute.c run.c simgdb.c stats.c stats.h
      stbgateway.c terp.h uv.c uv.h
Log Message:

Removed all move-engine stuff.
```

From: lisa
Sent: Wednesday, November 09, 1994 3:24 PM
To: 'Scott Furman'
Subject: Re: gnu-tools/sim/terp events.c execloop.c execute.c run.c simgdb.c stats.c stats.h

Don't cry. It's all in rcs... ;-)

From: vant [vanthof@hestia]
Sent: Wednesday, November 09, 1994 4:53 PM
To: 'Mark Hofmann'; 'Thomas Laidig'
Cc: 'Dave Van't Hof'; 'Tim B. Robinson'
Subject: euterpe upper drc's finished again

the latest test of euterpe upper drc's finished. and it only took 21 hours versus 64 for a single dracula run. The two vlsimm threads were using trex and the dracula thread was on medusa. with the latest revision to the drc flow, the run time should be around 20 hours for this version of euterpe. As we add more routing metal, the runtimes will take longer, but not very much. We might optimizitically get a fullchip metals drc in 24 hours using 3 processors (2 of which are sgi).

I think I'll start up some tests on the lower layers to try and get those running a lot faster.

Dave
--
Dave Van't Hof vanthof@microunity.com MicroUnity Systems Engineering, Inc.
"What rolls down stairs, alone or in pairs, rolls over the neighbor's dog?
What's great for a snack and fits on your back? It's log, log, log!"
LOG from BLAMMO! (tm) All kids love Log! #incluce <std_disclaim.h>

From: Derek Iverson [doi@demeter]
Sent: Wednesday, November 09, 1994 5:50 PM
To: 'gmo@demeter'; 'guarino@demeter'; 'wayne@demeter'; 'jeffm@demeter'; 'sandeep@demeter'; 'gregg@demeter'; 'doi@demeter'
Cc: 'hestia@demeter'; 'lisar@demeter'
Subject: Software Bring-up Meeting - November 9, 1994

Software Bringup Meeting
November 9, 1994

Next Meeting: November 16 at 10:00 am.

Review of the bring-up section of the euterpe schedule.
Review of CBI related issues.

Attendees: jeffm, guarino, gmo, wayne, doi, sandeep, gregg

Review of Action Items

Item: How are we supposed to track individual compontents in verification?
Who: mudge
Status: complete

Johnny talked to Trancy and JT and they were planning on putting a combination wafer/lot number on each of the tab devices. It was noted that this would not uniquely identify any particular chip.

Johnny has more follow-up to do in regards to this item but it is outside the scope of this meeting.

Item: Are there plans to allow tab devices to be replaced on boards?
Who: mudge
Status: complete

Johnny has said that there has been talk of allowing tab devices to be removed from boards and another device substituted.

There is also more follow-up work on this topic but it is outside the scope of this meeting.

Item: Define Parallel interface
Who: wayne, gmo, sandeep
Status: complete

Description has been added to the CBI document.

Item: Implement parallel port device drivers for sun and sgi.
Who: sandeep, doi
Status: on hold

Sandeep discovered that the parallel port on the sgi machines is not documented (which would prevent any local development of a device driver) and also does not support and form of interrupt mechanism (which we assumed in talking about how we would implement this workstation portion of the parallel CBI interface).

There is more discussion on this item later in the minutes.

Item: Define the boot state for standalone tests
Who: gmo, jeffm
Status: done

We have now added a new action item.

Item: Write up a plan for virtual devices and their interaction with gdb.
Who: gmo
Status: in progress

Item: Build scripting/UI capabilities above gdb for regression tests.
Who: doi
Status: no progress

Item: Create a separate tool for loading flashROM
Who: wayne
Status: done

The prom programmer company has supplied the algorithm and it has been tested satisfactorily.

Item: Implement remote gdb with the software simulator
Who: sandeep
Status: in progress

Sandeep is almost done. He is able to debug the ukernel and is now working on downloading and debugging applications.

Item: Get durations for items on the schedule for hestia function test
Who: doi
Status: in progress

Some dates have been supplied but more are needed. Derek will send out mail with the missing dates identified.

Item: Add the verification group's test control document to the bring-up plan.
Who: jeffm
Status: done

Item: Identify our brinp-up tools and make sure we have plans for how we will debug them.
Who: doi, et.al.
Status: in progress

Item: Develop plan for testing real-time software before the analog parts of calliope work.
Who: gregg
Status: in progress (plan by 11/16)

Item: Determine which pins can be software controlled on each of the sun port.
Who: doi
Status: in progress (done by 11/16)

Item: Ask Craig if an abort invalidates the byte in transit or the entire packet.
Who: wayne
Status: done

Item: Create performance test plan
Who: jeffm, guarino
Status: no progress

Item: Add Unix-like tests to software acceptance tests.
Who: guarino
Status: slight progress

New Action Items

-

Item: Write the boot code
Who: gmo
Status: new

Item: Add gdb stub to boot code
Who: sandeep
Status: start on 11/14

Item: Virtual device support
Who: gmo, sandeep
Status: start on 11/14

This will actually start after gdb boot stub has begun.
Sandeep estimated a finish time of 12/19.

Item: CerbROM support from terp.
Who: gmo, sandeep
Status: new

General Discussion

-

There is going to be a seperate meeting to discuss the hardware portion of the bring-up process. This will be initiated by wayne and the first meeting is scheduled for monday (11/14) at 4:00pm.

Jeff mentioned that he could make use of cerbROM support in terp right away. This resulted in a new action seen above.

There was some discussion about alternatives to using the parallel port to talk to the CBI hardware in light of the news that our planned implemention for the sgi machines may not be possible.

We brain-stormed some possible configurations:

Explanation of abbreviations:

gcbi gpib interface on CBI.
ecbi ethernet interface on CBI
mcbi micro-controller imbedded in CBI to handle the unspecified interface.

1. [workstation] <ethernet> [ethernet/gpib] <gpib> [gcbi] <cerberus> [hestia]
[translator]

pros: Any hestia box is accessible from any workstation (just like having a hestia on everyones desk without actually having a hestia on everyones desk).
Ethernet/gpib translator already exists.
Gpib and parallel definition are very similar.
cons: Expense of translator (~$300)

2. [workstation] <gpib> [gcbi] <cerberus> [hestia]

pros: Gpib and parallel definition are very similar.
cons: Cost of gpib card for workstation.

Will driver for gpib card support the functionality
that we want?

3. [workstation] <private ethernet> [ecbi] <cerberus> [hestia]

pros: ? (gmo had some, but I forgot)
cons: Need second ethernet card for workstation.
Development of a simple cerberus/ethernet
translator.

4. [workstation] <unknown media> [mcbi] <cerberus> hestia

pros: support any media interface
cons: development time

There needs to more discussion on what we need to do to support the CBI interface in light of the pandora plans.

Do we need a parallel CBI interface or is the serial interface sufficient? Serial interface currently implies that the clock is controlled by the workstation only.

Is there any need for a low-cost interface for hestia (i.e. something other than pandora) outside the company?

Do we think we have different requirements now for an interface to hestia that we had previously?

I think we need to have a gathering of tbr, lisar, gmo, guarino, wayne, ... to further hash out what our requirments and direction shouild be on the CBI issue.

From: Wayne Freitas [wayne@echidna]
Sent: Wednesday, November 09, 1994 9:32 PM
To: 'tbr@echidna'
Cc: 'lisar@echidna'; 'gap@echidna'; 'mouss@echidna'
Subject: AST NDA (the saga)

Tim;
cc Grant and John;

Tim, as you know I would like to use the AST box to help us in the bring-up and testing of Hestia by providing a standalone interface that connected directly to Hermes. Currently the AST box has a 500MB internal bus but only supports a 200MB digital interface. When I spoke to the AST engineers a while back they were thinking about upgrading the interface to 500MB but not until 3rd Q of 95. I inquired about designing an interface for us that works around the 300MB range, and there response was positve, and what seemed of relative ease. Since then I have been trying to get a NDA signed, but have run into a multitude of problem with AST signing our NDA. So the question I have is, how much data constitutes signing an NDA, can we have them sign our NDA under some form of understanding on our part. I have outline two approaches as to what I view as necessary.

1) (minimum)
Data acquision and stimulus rate of 350MHz. (requires us to design interface circuit)

2) (perfered)
Vol, Vil, Voh, Vih, Iol, Iil, Ioh, Iil, min-max clk duty cycle, clk to data set-up and hold time, Clock requirement (divide by 2 for stimulus), pin capacitance, data overshoot and undershoot max, data and clk signals differential.

As indicted before, I have always viewed the AST as a necessary bring-up tool to help exerise Calliope/Euterpe in a standalone mode for board and system level tests. We can still use the AST without the modification, but to connect to Hermes would require a level translator interface, and the PLL would have to be bypassed which defeats the purpose. Any help would be greatly appreciated.

Thanks,

Wayne

>
>I had a telephone conversation with AST (Applied Signal) and they
>informed me that they could not execute an NDA with us and give us the
>assurance that any AST employee would be bound by that agreement. It
>seems that they do not execute NDA's with their people and as a result
>none of their employees would be bound by our agreement - After
>discussing this with Lois, I put Applied Signal on an internal mission
>to find a compromise, if any.
>
>So, what do they have a need to know? Can we proceed without an NDA?
>
>Grant

From: Wayne Freitas [wayne@echidna]
Sent: Wednesday, November 09, 1994 9:35 PM
To: 'tbr@echidna'
Subject: swag dates for Euterpe and Calliope

Tim I've been updating the bring-up schedule and could really use a better guess than mine of when Calliope and Euterpe might be available. Would you care to provide a swag?

Thanks,

Wayne

From: Eric Murray [ericm@MicroUnity.com]
Sent: Thursday, November 10, 1994 10:01 AM
To: 'sysadm@MicroUnity.com'
Subject: disk usage report

For directories over 100 megs:
user's info:

brianl	1403
hopper	1231
chip	1028
dickson	907
fwo	889
craig	874
geert	847
jsw	684
tbr	659
rozen	575
gmo	570
vanthof	559
brendan	479
sandeep	472
vijay	466
h	464
rocky	449
qua	436
brian	417
wampler	370
ken	337
tbe	326
veena	304
khp	291
agc	281
fur	280
doi	271
tom	268
hchu	258
ras	239
fung	219
cox	213
iimura	211
peter	206
bill	205
rich	195
hessam	192
jeffm	191
lisar	189
haim	189
mws	186
al	181
billz	174
ericm	172
vandyke	171
solo	169
bpw	154
gregg	151
guarino	151

lisa 146
randy 142
wingard 140
woody 138
karzes 136
jeff 135
dane 132
octtools 130
tomho 126
albers 125
hayes 125
kgk 123
warren 123
fambro 119
yves 117
chuck 117
mikew 115
ong 112
paulb 102

packages info:
chip-euterpe-buil 2017
calliope 1579
news 1441
euterpe-verify 1011
chip-archive 868
orchis_snap 811
chip-proteus 795
calliope-disk2 730
cadence 639
soft-src 639
losf-build 637
ptolemy 605
archives 586
sun 568
cadence.hp 552
soft 489
calliope1-fractur 487
chip-calliope 484
chip-terpsichore 475
sgi 377
x11r5_ken_p26 329
castor-retry 325
bosf-build 323
chip-archive-terp 318
calliope-overflow 297
bigtmp 295
mips-4.52 282
osf 260
chip-archive-mnem 259
X11r4 228
bsd 222
cadence_doc 221
synopsys 216
cadence_doc_9402 215
budtool_db 190
budtool 180
Motif 177
mechanica 164

sgi5	152
ucberl	147
vlsi.v8r4_2	145
proe_tmp	138
ftp	134
khoros	134
proe_13.0	134
calliope-verify	132
iimura.be	128
gnu	125
bsd43	115
frame-4.0.3	114
svr4	114
X11r5	111
lib	110
iimura-cross	106
chip-mdunit	105
motif1.2	101

machine	user megs	package megs	total megs	max capacity	% used
auspex	19828	18612	38441	62240	61%
rama	3667	2392	6059	9428	64%
rhea	211	1599	1810	2484	72%
gaea	5	1827	1833	1780	102%
cronus	626	2216	2842	6208	45%

auspex rama rhea gaea cronus:

24337	26646	50985	82140	62%

From: Charlie Root [root@MicroUnity.com]

Sent: Thursday, November 10, 1994 11:33 AM

To: 'sysadmin@gaea'

Subject: BudTool Backup Report 48 Successful, 5 volumes used, 3809520 KB written.

```
09:33:11> ==================================================
09:33:11> Backup Statistics:
09:33:11>  Media server       : stacker0
09:33:11>  Start Time         : Wed Nov  9 22:00:39 1994
09:33:11>  Time completed     : Thu Nov 10 09:33:11 1994
09:33:11>  Elapsed time       : 11:32:32
09:33:11>  Total data written : 3809520 KB
09:33:11>  Overall performance : 91 KB/sec
09:33:11>  Volumes used       : 5
09:33:11>  Write Retries      : 6510
09:33:11>  Number of Requests : 48
09:33:11>  Successful Requests : 48
09:33:11>  Status Summary     : No errors
09:33:11> ==================================================


----------Complete log follows. ----------
22:00:16> Copyright (c) 1990-1994 by Delta Microsystems goserver BudTool 4.2.0
22:00:16> goserver process id = 12523
22:00:23> ==================================================
22:00:23> Start packet received.  Requests: 48
22:00:24> ==================================================
22:00:24> Checking Volume Modes/Labels for validity
22:00:24> Reading the volume's label.
22:00:36> The current volume has label of `incr_3'
22:00:37> Checking Volume Modes/Labels done
22:00:38> ==================================================
22:00:39> Time started: Wed Nov  9 22:00:39 1994
22:00:39> Reading the volume's label.
22:01:05> The current volume has label of `incr_3'
22:01:08> --------------------
22:01:08> Open Volume    : incr_3
22:01:09> Current # files : 131
22:01:09> Remaining space : 4581417 KB
22:01:10> --------------------------------------------------
22:01:10> Request Identification (#1):
22:01:10>  Requestor    : root@auspex0
22:01:10>  Id           : ad0a
22:01:10>  Path         : auspex0:/
22:01:10>  Type         : dump
22:01:10>  File History : Maintained
22:01:11> Positioning to append to tape
22:03:58>  Volume label : incr_3
22:03:58>  File number  : 132
22:03:58> ------------------------
22:04:15>  DUMP: Date of this level 4 dump: Wed Nov  9 22:04:10 1994
22:04:15>  DUMP: Date of last level 3 dump: Tue Nov  8 22:03:53 1994
22:04:16>  DUMP: Dumping /dev/rad0a (/) to standard output
22:04:17>  DUMP: mapping (Pass I) [regular files]
22:04:18>  DUMP: mapping (Pass II) [directories]
22:04:20>  DUMP: mapping (Pass II) [directories]
```

```
22:04:21>  DUMP: estimated 3014 blocks (1.47MB)
22:04:21>  DUMP: dumping (Pass III) [directories]
22:04:21>  DUMP: dumping (Pass IV) [regular files]
22:04:47>  DUMP: level 4 dump on Wed Nov  9 22:04:10 1994
22:04:47>  DUMP: 3008 blocks (1.47MB)
22:04:48>  DUMP: DUMP IS DONE
22:04:48> Backup command completed successfully.
22:04:55> ------------------------
22:04:55> Request Statistics:
22:04:55>  Data written : 1560 KB
22:04:55>  Elapsed time : 00:03:45
22:04:55>  Status      : Successful
22:04:55>  Performance  : 6 KB/sec
22:04:55>  Peak rate    : 0 KB/sec
22:04:55>  Write Retries: -6
22:04:55> ------------------------------------------------
22:04:56> ------------------------------------------------
22:04:56> Request Identification (#2):
22:04:56>  Requestor   : root@auspex0
22:04:56>  Id          : ad0e
22:04:56>  Path        : auspex0:/export
22:04:56>  Type        : dump
22:04:56>  File History : Maintained
22:04:57>  Volume label : incr_3
22:04:57>  File number  : 133
22:04:57> ------------------------
22:05:10>  DUMP: Date of this level 4 dump: Wed Nov  9 22:05:06 1994
22:05:10>  DUMP: Date of last level 3 dump: Tue Nov  8 22:04:43 1994
22:05:11>  DUMP: Dumping /dev/rad0e (/export) to standard output
22:05:12>  DUMP: mapping (Pass I) [regular files]
22:05:44>  DUMP: mapping (Pass II) [directories]
22:05:46>  DUMP: mapping (Pass II) [directories]
22:05:47>  DUMP: mapping (Pass II) [directories]
22:05:48>  DUMP: estimated 72766 blocks (35.53MB)
22:05:48>  DUMP: dumping (Pass III) [directories]
22:05:49>  DUMP: dumping (Pass IV) [regular files]
22:08:11>  DUMP: level 4 dump on Wed Nov  9 22:05:06 1994
22:08:11>  DUMP: 72812 blocks (35.55MB)
22:08:11>  DUMP: DUMP IS DONE
22:08:12> Backup command completed successfully.
22:08:16> ------------------------
22:08:16> Request Statistics:
22:08:16>  Data written : 36420 KB
22:08:16>  Elapsed time : 00:03:20
22:08:16>  Status      : Successful
22:08:16>  Performance  : 182 KB/sec
22:08:16>  Peak rate    : 352 KB/sec
22:08:17>  Write Retries: 98
22:08:17> ------------------------------------------------
22:08:17> ------------------------------------------------
22:08:17> Request Identification (#3):
22:08:17>  Requestor   : root@auspex0
22:08:17>  Id          : ad0f
22:08:17>  Path        : auspex0:/var
22:08:17>  Type        : dump
22:08:17>  File History : Maintained
22:08:18>  Volume label : incr_3
22:08:18>  File number  : 134
22:08:18> ------------------------
22:08:31>  DUMP: Date of this level 4 dump: Wed Nov  9 22:08:26 1994
22:08:31>  DUMP: Date of last level 3 dump: Tue Nov  8 22:07:20 1994
```

```
22:08:31>  DUMP: Dumping /dev/rad0f (/var) to standard output
22:08:33>  DUMP: mapping (Pass I) [regular files]
22:08:44>  DUMP: mapping (Pass II) [directories]
22:08:45>  DUMP: mapping (Pass II) [directories]
22:08:46>  DUMP: estimated 19782 blocks (9.66MB)
22:08:46>  DUMP: dumping (Pass III) [directories]
22:08:47>  DUMP: dumping (Pass IV) [regular files]
22:09:37>  DUMP: level 4 dump on Wed Nov  9 22:08:26 1994
22:09:37>  DUMP: 19838 blocks (9.69MB)
22:09:37>  DUMP: DUMP IS DONE
22:09:38> Backup command completed successfully.
22:09:41> ------------------------
22:09:41> Request Statistics:
22:09:41>  Data written : 9960 KB
22:09:41>  Elapsed time : 00:01:24
22:09:41>  Status      : Successful
22:09:41>  Performance  : 118 KB/sec
22:09:41>  Peak rate    : 96 KB/sec
22:09:42>  Write Retries: 13
22:09:42> ------------------------------------------------
22:09:43> ------------------------------------------------
22:09:43> Request Identification (#4):
22:09:43>  Requestor    : root@auspex0
22:09:43>  Id           : ad0g
22:09:43>  Path         : auspex0:/usr
22:09:43>  Type         : dump
22:09:43>  File History : Maintained
22:09:44>  Volume label : incr_3
22:09:44>  File number  : 135
22:09:44> ------------------------
22:09:57>  DUMP: Date of this level 4 dump: Wed Nov  9 22:09:53 1994
22:09:57>  DUMP: Date of last level 3 dump: Tue Nov  8 22:08:31 1994
22:09:59>  DUMP: Dumping /dev/rad0g (/usr) to standard output
22:09:59>  DUMP: mapping (Pass I) [regular files]
22:10:11>  DUMP: mapping (Pass II) [directories]
22:10:19>  DUMP: mapping (Pass II) [directories]
22:10:21>  DUMP: estimated 180 blocks (90KB)
22:10:22>  DUMP: dumping (Pass III) [directories]
22:10:22>  DUMP: dumping (Pass IV) [regular files]
22:10:28>  DUMP: level 4 dump on Wed Nov  9 22:09:53 1994
22:10:28>  DUMP: 244 blocks (122KB)
22:10:28>  DUMP: DUMP IS DONE
22:10:29> Backup command completed successfully.
22:10:34> ------------------------
22:10:34> Request Statistics:
22:10:34>  Data written : 180 KB
22:10:34>  Elapsed time : 00:00:51
22:10:34>  Status      : Successful
22:10:34>  Performance  : 3 KB/sec
22:10:34>  Peak rate    : 0 KB/sec
22:10:35> ------------------------------------------------
22:10:35> ------------------------------------------------
22:10:35> Request Identification (#5):
22:10:35>  Requestor    : root@auspex0
22:10:35>  Id           : vp100
22:10:35>  Path         : auspex0:/s27
22:10:35>  Type         : dump
22:10:35>  File History : Maintained
22:10:36>  Volume label : incr_3
22:10:36>  File number  : 136
22:10:36> ------------------------
```

22:10:49> DUMP: Date of this level 8 dump: Wed Nov 9 22:10:45 1994
22:10:49> DUMP: Date of last level 3 dump: Tue Nov 8 22:09:19 1994
22:10:50> DUMP: Dumping /dev/rvp100 (/s27) to standard output
22:10:50> DUMP: mapping (Pass I) [regular files]
22:12:46> DUMP: mapping (Pass II) [directories]
22:14:16> DUMP: estimated 274 blocks (137KB)
22:14:16> DUMP: dumping (Pass III) [directories]
22:17:05> DUMP: dumping (Pass IV) [regular files]
22:17:10> DUMP: level 8 dump on Wed Nov 9 22:10:45 1994
22:17:10> DUMP: 18234 blocks (8.90MB)
22:17:10> DUMP: DUMP IS DONE
22:17:37> Backup command completed successfully.
22:17:42> ----------
22:17:42> Request Statistics:
22:17:42> Data written : 9120 KB
22:17:42> Elapsed time : 00:07:07
22:17:42> Status : Successful
22:17:42> Performance : 21 KB/sec
22:17:42> Peak rate : 17 KB/sec
22:17:45> ----------
22:17:46> ----------
22:17:46> Request Identification (#6):
22:17:46> Requestor : root@auspex0
22:17:46> Id : vp101
22:17:46> Path : auspex0:/s28
22:17:46> Type : dump
22:17:46> File History : Maintained
22:17:47> Volume label : incr_3
22:17:47> File number : 137
22:17:47> ----------
22:18:02> DUMP: Date of this level 8 dump: Wed Nov 9 22:17:56 1994
22:18:02> DUMP: Date of last level 3 dump: Tue Nov 8 22:15:43 1994
22:18:02> DUMP: Dumping /dev/rvp101 (/s28) to standard output
22:18:03> DUMP: mapping (Pass I) [regular files]
22:20:41> DUMP: mapping (Pass II) [directories]
22:22:00> DUMP: estimated 274 blocks (137KB)
22:22:01> DUMP: dumping (Pass III) [directories]
22:23:24> DUMP: dumping (Pass IV) [regular files]
22:23:29> DUMP: level 8 dump on Wed Nov 9 22:17:56 1994
22:23:29> DUMP: 8248 blocks (4.03MB)
22:23:29> DUMP: DUMP IS DONE
22:23:44> Backup command completed successfully.
22:23:50> ----------
22:23:50> Request Statistics:
22:23:50> Data written : 4140 KB
22:23:50> Elapsed time : 00:06:04
22:23:50> Status : Successful
22:23:50> Performance : 11 KB/sec
22:23:50> Peak rate : 0 KB/sec
22:23:50> ----------
22:23:51> ----------
22:23:51> Request Identification (#7):
22:23:51> Requestor : root@auspex0
22:23:51> Id : vp102
22:23:51> Path : auspex0:/s29
22:23:51> Type : dump
22:23:51> File History : Maintained
22:23:52> Volume label : incr_3
22:23:52> File number : 138
22:23:52> ----------
22:24:07> DUMP: Date of this level 8 dump: Wed Nov 9 22:24:02 1994

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22:24:07>  DUMP: Date of last level 3 dump: Tue Nov  8 22:30:39 1994
22:24:07>  DUMP: Dumping /dev/rvp102 (/s29) to standard output
22:24:08>  DUMP: mapping (Pass I) [regular files]
22:26:04>  DUMP: mapping (Pass II) [directories]
22:26:31>  DUMP: mapping (Pass II) [directories]
22:26:46>  DUMP: mapping (Pass II) [directories]
22:26:53>  DUMP: estimated 635124 blocks (310.12MB)
22:26:53> -------------------------------------------------------------------
22:26:53>              ------  W A R N I N G  -------
22:26:53> Insufficient space remaining on media.
22:26:53>
22:26:53> The backup utility's estimate for the size of the backup
22:26:53> exceeds the remaining space left on the volume.
22:26:53>
22:26:53> Estimated   Space Remaining
22:26:53> Size (KB)   on Volume (KB)
22:26:53> ---------   ---------------
22:26:53>    317440           211073
22:26:53>
22:26:53> The backup will be restarted on the next volume.
22:26:53> -------------------------------------------------------------------
22:26:53> -------------------------------------------------------------------
22:26:53>              ------  W A R N I N G  -------
22:26:53> Command killed by operator.  The backup
22:26:53> is in the process of being killed.  Please
22:26:53> be patient.
22:26:53> -------------------------------------------------------------------
22:26:54>  DUMP: Write error on standard output
22:26:54>  DUMP: Cannot recover
22:26:54>  DUMP: The ENTIRE dump is aborted.
22:26:56> Disposing of file history scratch file
22:27:34> Writing a trailer to end of data
22:31:33> Reading the volume's label.
22:31:36> The current volume has label of `incr_4'
22:31:37> --------------------
22:31:37> Open Volume    : incr_4
22:31:38> Current # files : 87
22:31:38> Remaining space : 4581775 KB
22:31:39> ----------------------------------------------------
22:31:39> Request Identification (#7):
22:31:39>  Requestor   : root@auspex0
22:31:39>  Id          : vp102
22:31:39>  Path        : auspex0:/s29
22:31:39>  Type        : dump
22:31:39>  File History : Maintained
22:31:40> Positioning to append to tape
22:34:32>  Volume label : incr_4
22:34:32>  File number  : 88
22:34:32> ----------------------
22:34:45>  DUMP: Date of this level 8 dump: Wed Nov  9 22:34:41 1994
22:34:45>  DUMP: Date of last level 3 dump: Tue Nov  8 22:30:39 1994
22:34:46>  DUMP: Dumping /dev/rvp102 (/s29) to standard output
22:34:47>  DUMP: mapping (Pass I) [regular files]
22:37:24>  DUMP: mapping (Pass II) [directories]
22:37:51>  DUMP: mapping (Pass II) [directories]
22:38:06>  DUMP: mapping (Pass II) [directories]
22:38:13>  DUMP: estimated 704896 blocks (344.19MB)
22:38:13> -------------------------------------------------------------------
22:38:13>              ------  W A R N I N G  -------
22:38:13> Insufficient space remaining on media.
22:38:13>
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22:38:13> The backup utility's estimate for the size of the backup
22:38:13> exceeds the remaining space left on the volume.
22:38:13>
22:38:13> Estimated   Space Remaining
22:38:13> Size (KB)   on Volume (KB)
22:38:13> ---------   ---------------
22:38:13>   352256          43777
22:38:13>
22:38:13> The backup will be restarted on the next volume.
22:38:13> ------------------------------------------------------------------------
22:38:13> ------------------------------------------------------------------------
22:38:13>              ------  W A R N I N G  -------
22:38:13> Command killed by operator.  The backup
22:38:13> is in the process of being killed.  Please
22:38:13> be patient.
22:38:13> ------------------------------------------------------------------------
22:38:14>   DUMP: Write error on standard output
22:38:14>   DUMP: Cannot recover
22:38:14>   DUMP: The ENTIRE dump is aborted.
22:38:15> Disposing of file history scratch file
22:38:54> Writing a trailer to end of data
22:42:58> Reading the volume's label.
22:43:02> The current volume has label of `incr_5'
22:43:03> --------------------
22:43:03> Open Volume    : incr_5
22:43:04> Current # files : 73
22:43:04> Remaining space : 4581529 KB
22:43:05> ------------------------------------------------
22:43:05> Request Identification (#7):
22:43:05>   Requestor    : root@auspex0
22:43:05>   Id           : vp102
22:43:05>   Path         : auspex0:/s29
22:43:05>   Type         : dump
22:43:05>   File History : Maintained
22:43:06> Positioning to append to tape
22:45:50>   Volume label : incr_5
22:45:50>   File number  : 74
22:45:50> ------------------------
22:46:04>   DUMP: Date of this level 8 dump: Wed Nov  9 22:45:59 1994
22:46:04>   DUMP: Date of last level 3 dump: Tue Nov  8 22:30:39 1994
22:46:04>   DUMP: Dumping /dev/rvp102 (/s29) to standard output
22:46:05>   DUMP: mapping (Pass I) [regular files]
22:48:02>   DUMP: mapping (Pass II) [directories]
22:48:29>   DUMP: mapping (Pass II) [directories]
22:48:46>   DUMP: mapping (Pass II) [directories]
22:48:53>   DUMP: estimated 704896 blocks (344.19MB)
22:48:53> ------------------------------------------------------------------------
22:48:53>              ------  W A R N I N G  -------
22:48:53> Insufficient space remaining on media.
22:48:53>
22:48:53> The backup utility's estimate for the size of the backup
22:48:53> exceeds the remaining space left on the volume.
22:48:53>
22:48:53> Estimated   Space Remaining
22:48:53> Size (KB)   on Volume (KB)
22:48:53> ---------   ---------------
22:48:53>   352256          294385
22:48:53>
22:48:53> The backup will be restarted on the next volume.
22:48:53> ------------------------------------------------------------------------
22:48:53> ------------------------------------------------------------------------
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22:48:53>            ------  W A R N I N G  ------
22:48:53> Command killed by operator.  The backup
22:48:53> is in the process of being killed.  Please
22:48:53> be patient.
22:48:53> ------------------------------------------------------------------
22:48:54>  DUMP: Write error on standard output
22:48:54>  DUMP: Cannot recover
22:48:54>  DUMP: The ENTIRE dump is aborted.
22:48:55> Disposing of file history scratch file
22:49:33> Writing a trailer to end of data
22:53:31> Reading the volume's label.
22:53:34> The current volume has label of `incr_6'
22:53:36> --------------------
22:53:36> Open Volume    : incr_6
22:53:36> Current # files : 65
22:53:36> Remaining space : 4581661 KB
22:53:38> ------------------------------------------------------
22:53:38> Request Identification (#7):
22:53:38>  Requestor   : root@auspex0
22:53:38>  Id          : vp102
22:53:38>  Path        : auspex0:/s29
22:53:38>  Type        : dump
22:53:38>  File History : Maintained
22:53:38> Positioning to append to tape
22:56:24>  Volume label : incr_6
22:56:24>  File number  : 66
22:56:24> -------------------------
22:56:37>  DUMP: Date of this level 8 dump: Wed Nov  9 22:56:32 1994
22:56:37>  DUMP: Date of last level 3 dump: Tue Nov  8 22:30:39 1994
22:56:38>  DUMP: Dumping /dev/rvp102 (/s29) to standard output
22:56:38>  DUMP: mapping (Pass I) [regular files]
22:58:37>  DUMP: mapping (Pass II) [directories]
22:59:04>  DUMP: mapping (Pass II) [directories]
22:59:19>  DUMP: mapping (Pass II) [directories]
22:59:27>  DUMP: estimated 704896 blocks (344.19MB)
22:59:27> ------------------------------------------------------------------
22:59:27>            ------  W A R N I N G  -------
22:59:27> Insufficient space remaining on media.
22:59:27>
22:59:27> The backup utility's estimate for the size of the backup
22:59:27> exceeds the remaining space left on the volume.
22:59:27>
22:59:27> Estimated   Space Remaining
22:59:27> Size (KB)   on Volume (KB)
22:59:27> ---------   ---------------
22:59:27>   352256          257009
22:59:27>
22:59:27> The backup will be restarted on the next volume.
22:59:27> ------------------------------------------------------------------
22:59:27> ------------------------------------------------------------------
22:59:27>            ------  W A R N I N G  -------
22:59:27> Command killed by operator.  The backup
22:59:27> is in the process of being killed.  Please
22:59:27> be patient.
22:59:27> ------------------------------------------------------------------
22:59:27>  DUMP: Write error on standard output
22:59:27>  DUMP: Cannot recover
22:59:28>  DUMP: The ENTIRE dump is aborted.
22:59:29> Disposing of file history scratch file
23:00:12> Writing a trailer to end of data
23:04:12> Reading the volume's label.
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23:04:15> The current volume has label of `incr_7'
23:04:16> --------------------
23:04:16> Open Volume    : incr_7
23:04:17> Current # files : 1
23:04:17> Remaining space : 4582696 KB
23:04:18> ------------------------------------------------------
23:04:18> Request Identification (#7):
23:04:18>   Requestor   : root@auspex0
23:04:18>   Id         : vp102
23:04:18>   Path       : auspex0:/s29
23:04:18>   Type       : dump
23:04:18>   File History : Maintained
23:04:19> Positioning to append to tape
23:04:50>   Volume label : incr_7
23:04:50>   File number  : 2
23:04:50> ------------------------
23:05:05>   DUMP: Date of this level 8 dump: Wed Nov  9 23:05:00 1994
23:05:05>   DUMP: Date of last level 3 dump: Tue Nov  8 22:30:39 1994
23:05:06>   DUMP: Dumping /dev/rvp102 (/s29) to standard output
23:05:06>   DUMP: mapping (Pass I) [regular files]
23:07:05>   DUMP: mapping (Pass II) [directories]
23:07:33>   DUMP: mapping (Pass II) [directories]
23:07:48>   DUMP: mapping (Pass II) [directories]
23:07:55>   DUMP: estimated 704896 blocks (344.19MB)
23:07:57>   DUMP: dumping (Pass III) [directories]
23:08:27>   DUMP: dumping (Pass IV) [regular files]
23:13:43>   DUMP: 23.81% done, finished in 0:16
23:17:57>   DUMP: 48.76% done, finished in 0:10
23:23:15>   DUMP: 76.28% done, finished in 0:04
23:27:21>   DUMP: level 8 dump on Wed Nov  9 23:05:00 1994
23:27:21>   DUMP: 702906 blocks (343.22MB)
23:27:21>   DUMP: DUMP IS DONE
23:27:28> Backup command completed successfully.
23:27:33> ------------------------
23:27:33> Request Statistics:
23:27:33>   Data written : 351480 KB
23:27:33>   Elapsed time : 00:23:15
23:27:33>   Status      : Successful
23:27:33>   Performance  : 251 KB/sec
23:27:33>   Peak rate    : 375 KB/sec
23:27:34>   Write Retries: 694
23:27:34> ------------------------------------------------------
23:27:34> ------------------------------------------------------
23:27:34> Request Identification (#8):
23:27:34>   Requestor   : root@auspex0
23:27:34>   Id         : vp103
23:27:34>   Path       : auspex0:/s30
23:27:34>   Type       : dump
23:27:34>   File History : Maintained
23:27:35>   Volume label : incr_7
23:27:35>   File number  : 3
23:27:35> ------------------------
23:27:48>   DUMP: Date of this level 8 dump: Wed Nov  9 23:27:43 1994
23:27:48>   DUMP: Date of last level 3 dump: Tue Nov  8 22:47:00 1994
23:27:49>   DUMP: Dumping /dev/rvp103 (/s30) to standard output
23:27:50>   DUMP: mapping (Pass I) [regular files]
23:29:45>   DUMP: mapping (Pass II) [directories]
23:30:28>   DUMP: estimated 274 blocks (137KB)
23:30:28>   DUMP: dumping (Pass III) [directories]
23:30:48>   DUMP: dumping (Pass IV) [regular files]
23:30:57>   DUMP: level 8 dump on Wed Nov  9 23:27:43 1994
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23:30:57>  DUMP: 2528 blocks (1.23MB)
23:30:57>  DUMP: DUMP IS DONE
23:30:58> Backup command completed successfully.
23:31:10> -------------------------
23:31:10> Request Statistics:
23:31:10>  Data written : 1320 KB
23:31:10>  Elapsed time : 00:03:36
23:31:10>  Status      : Successful
23:31:10>  Performance  : 6 KB/sec
23:31:10>  Peak rate    : 0 KB/sec
23:31:10> -------------------------------------------------
23:31:11> -------------------------------------------------
23:31:11> Request Identification (#9):
23:31:11>  Requestor    : root@auspex0
23:31:11>  Id           : vp104
23:31:11>  Path         : auspex0:/s31
23:31:11>  Type         : dump
23:31:11>  File History : Maintained
23:31:11>  Volume label : incr_7
23:31:11>  File number  : 4
23:31:11> -------------------------
23:31:25>  DUMP: Date of this level 8 dump: Wed Nov  9 23:31:20 1994
23:31:25>  DUMP: Date of last level 3 dump: Tue Nov  8 22:50:46 1994
23:31:25>  DUMP: Dumping /dev/rvp104 (/s31) to standard output
23:31:26>  DUMP: mapping (Pass I) [regular files]
23:33:22>  DUMP: mapping (Pass II) [directories]
23:34:02>  DUMP: mapping (Pass II) [directories]
23:34:16>  DUMP: mapping (Pass II) [directories]
23:34:25>  DUMP: estimated 128840 blocks (62.91MB)
23:34:35>  DUMP: dumping (Pass III) [directories]
23:34:54>  DUMP: dumping (Pass IV) [regular files]
23:39:28>  DUMP: 97.75% done, finished in 0:00
23:39:36>  DUMP: level 8 dump on Wed Nov  9 23:31:20 1994
23:39:36>  DUMP: 129120 blocks (63.05MB)
23:39:36>  DUMP: DUMP IS DONE
23:39:41> Backup command completed successfully.
23:39:45> -------------------------
23:39:45> Request Statistics:
23:39:45>  Data written : 64620 KB
23:39:45>  Elapsed time : 00:08:34
23:39:45>  Status      : Successful
23:39:45>  Performance  : 125 KB/sec
23:39:45>  Peak rate    : 352 KB/sec
23:39:46>  Write Retries: 67
23:39:46> -------------------------------------------------
23:39:46> -------------------------------------------------
23:39:46> Request Identification (#10):
23:39:46>  Requestor    : root@auspex0
23:39:46>  Id           : vp105
23:39:46>  Path         : auspex0:/s32
23:39:46>  Type         : dump
23:39:46>  File History : Maintained
23:39:47>  Volume label : incr_7
23:39:47>  File number  : 5
23:39:47> -------------------------
23:40:01>  DUMP: Date of this level 8 dump: Wed Nov  9 23:39:55 1994
23:40:01>  DUMP: Date of last level 3 dump: Tue Nov  8 22:55:24 1994
23:40:01>  DUMP: Dumping /dev/rvp105 (/s32) to standard output
23:40:03>  DUMP: mapping (Pass I) [regular files]
23:42:02>  DUMP: mapping (Pass II) [directories]
23:42:40>  DUMP: mapping (Pass II) [directories]
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23:42:57> DUMP: mapping (Pass II) [directories]
23:43:04> DUMP: mapping (Pass II) [directories]
23:43:09> DUMP: estimated 196618 blocks (96.00MB)
23:43:11> DUMP: dumping (Pass III) [directories]
23:43:16> DUMP: dumping (Pass IV) [regular files]
23:48:44> DUMP: 89.53% done, finished in 0:00
23:48:48> DUMP: level 8 dump on Wed Nov 9 23:39:55 1994
23:48:48> DUMP: 196752 blocks (96.07MB)
23:48:48> DUMP: DUMP IS DONE
23:48:49> Backup command completed successfully.
23:48:53> ----------
23:48:53> Request Statistics:
23:48:53> Data written : 98400 KB
23:48:53> Elapsed time : 00:09:07
23:48:53> Status : Successful
23:48:53> Performance : 179 KB/sec
23:48:53> Peak rate : 352 KB/sec
23:48:54> Write Retries: 61
23:48:54> ----------
23:48:55> ----------
23:48:55> Request Identification (#11):
23:48:55> Requestor : root@auspex0
23:48:55> Id : vp106
23:48:55> Path : auspex0:/s33
23:48:55> Type : dump
23:48:55> File History : Maintained
23:48:55> Volume label : incr_7
23:48:55> File number : 6
23:48:55> ----------
23:49:11> DUMP: Date of this level 8 dump: Wed Nov 9 23:49:06 1994
23:49:11> DUMP: Date of last level 3 dump: Tue Nov 8 23:05:41 1994
23:49:11> DUMP: Dumping /dev/rvp106 (/s33) to standard output
23:49:12> DUMP: mapping (Pass I) [regular files]
23:51:09> DUMP: mapping (Pass II) [directories]
23:52:30> DUMP: mapping (Pass II) [directories]
23:53:09> DUMP: mapping (Pass II) [directories]
23:53:25> DUMP: mapping (Pass II) [directories]
23:53:33> DUMP: mapping (Pass II) [directories]
23:53:39> DUMP: estimated 91984 blocks (44.91MB)
23:53:45> DUMP: dumping (Pass III) [directories]
23:53:51> DUMP: dumping (Pass IV) [regular files]
23:56:33> DUMP: level 8 dump on Wed Nov 9 23:49:06 1994
23:56:33> DUMP: 91956 blocks (44.90MB)
23:56:33> DUMP: DUMP IS DONE
23:56:35> Backup command completed successfully.
23:56:38> ----------
23:56:38> Request Statistics:
23:56:38> Data written : 46020 KB
23:56:38> Elapsed time : 00:07:43
23:56:38> Status : Successful
23:56:38> Performance : 99 KB/sec
23:56:38> Peak rate : 352 KB/sec
23:56:39> Write Retries: 53
23:56:39> ----------
23:56:41> ----------
23:56:41> Request Identification (#12):
23:56:41> Requestor : root@auspex0
23:56:41> Id : vp107
23:56:41> Path : auspex0:/s34
23:56:41> Type : dump
23:56:41> File History : Maintained

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23:56:42>  Volume label : incr_7
23:56:42>  File number  : 7
23:56:42> ------------------------
23:56:55>  DUMP: Date of this level 8 dump: Wed Nov  9 23:56:50 1994
23:56:55>  DUMP: Date of last level 3 dump: Tue Nov  8 23:13:12 1994
23:56:55>  DUMP: Dumping /dev/rvp107 (/s34) to standard output
23:56:55>  DUMP: mapping (Pass I) [regular files]
23:58:49>  DUMP: mapping (Pass II) [directories]
00:00:30>  DUMP: mapping (Pass II) [directories]
00:01:03>  DUMP: estimated 7506 blocks (3.67MB)
00:01:10>  DUMP: dumping (Pass III) [directories]
00:01:30>  DUMP: dumping (Pass IV) [regular files]
00:01:57>  DUMP: level 8 dump on Wed Nov  9 23:56:50 1994
00:01:57>  DUMP: 9564 blocks (4.67MB)
00:01:57>  DUMP: DUMP IS DONE
00:01:59> Backup command completed successfully.
00:02:03> ------------------------
00:02:03> Request Statistics:
00:02:03>  Data written : 4800 KB
00:02:03>  Elapsed time : 00:05:22
00:02:04>  Status      : Successful
00:02:04>  Performance  : 14 KB/sec
00:02:04>  Peak rate    : 0 KB/sec
00:02:04>  Write Retries: 4
00:02:04> ------------------------------------------------
00:02:05> ------------------------------------------------
00:02:05> Request Identification (#13):
00:02:05>  Requestor    : root@auspex0
00:02:05>  Id           : vp108
00:02:05>  Path         : auspex0:/s35
00:02:05>  Type         : dump
00:02:05>  File History : Maintained
00:02:06>  Volume label : incr_7
00:02:06>  File number  : 8
00:02:06> ------------------------
00:02:17>  DUMP: Date of this level 8 dump: Thu Nov 10 00:02:13 1994
00:02:18>  DUMP: Date of last level 3 dump: Tue Nov  8 23:18:07 1994
00:02:18>  DUMP: Dumping /dev/rvp108 (/s35) to standard output
00:02:18>  DUMP: mapping (Pass I) [regular files]
00:04:02>  DUMP: mapping (Pass II) [directories]
00:06:24>  DUMP: estimated 250 blocks (125KB)
00:06:28>  DUMP: dumping (Pass III) [directories]
00:08:44>  DUMP: dumping (Pass IV) [regular files]
00:08:52>  DUMP: level 8 dump on Thu Nov 10 00:02:13 1994
00:08:53>  DUMP: 15496 blocks (7.57MB)
00:08:53>  DUMP: DUMP IS DONE
00:09:08> Backup command completed successfully.
00:09:13> ------------------------
00:09:13> Request Statistics:
00:09:13>  Data written : 7800 KB
00:09:13>  Elapsed time : 00:07:08
00:09:13>  Status      : Successful
00:09:13>  Performance  : 18 KB/sec
00:09:13>  Peak rate    : 16 KB/sec
00:09:13>  Write Retries: 1
00:09:13> ------------------------------------------------
00:09:14> ------------------------------------------------
00:09:14> Request Identification (#14):
00:09:14>  Requestor    : root@auspex0
00:09:14>  Id           : vp109
00:09:14>  Path         : auspex0:/s36
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00:09:14> Type : dump
00:09:14> File History : Maintained
00:09:14> Volume label : incr_7
00:09:14> File number : 9
00:09:14> ----------
00:09:25> DUMP: Date of this level 8 dump: Thu Nov 10 00:09:21 1994
00:09:25> DUMP: Date of last level 3 dump: Tue Nov 8 23:34:45 1994
00:09:25> DUMP: Dumping /dev/rvp109 (/s36) to standard output
00:09:26> DUMP: mapping (Pass I) [regular files]
00:11:05> DUMP: mapping (Pass II) [directories]
00:11:23> DUMP: mapping (Pass II) [directories]
00:11:30> DUMP: estimated 261166 blocks (127.52MB)
00:11:34> DUMP: dumping (Pass III) [directories]
00:11:38> DUMP: dumping (Pass IV) [regular files]
00:16:46> DUMP: 85.12% done, finished in 0:00
00:17:27> DUMP: level 8 dump on Thu Nov 10 00:09:21 1994
00:17:27> DUMP: 261534 blocks (127.70MB)
00:17:27> DUMP: DUMP IS DONE
00:17:28> Backup command completed successfully.
00:17:33> ----------
00:17:33> Request Statistics:
00:17:33> Data written : 130800 KB
00:17:33> Elapsed time : 00:08:19
00:17:33> Status : Successful
00:17:33> Performance : 262 KB/sec
00:17:33> Peak rate : 428 KB/sec
00:17:33> Write Retries: 148
00:17:33> ----------
00:17:34> ----------
00:17:34> Request Identification (#15):
00:17:34> Requestor : root@auspex0
00:17:34> Id : vp110
00:17:34> Path : auspex0:/s37
00:17:34> Type : dump
00:17:34> File History : Maintained
00:17:34> Volume label : incr_7
00:17:34> File number : 10
00:17:34> ----------
00:17:45> DUMP: Date of this level 8 dump: Thu Nov 10 00:17:41 1994
00:17:45> DUMP: Date of last level 3 dump: Tue Nov 8 23:40:05 1994
00:17:45> DUMP: Dumping /dev/rvp110 (/s37) to standard output
00:17:46> DUMP: mapping (Pass I) [regular files]
00:19:29> DUMP: mapping (Pass II) [directories]
00:19:31> DUMP: mapping (Pass II) [directories]
00:19:33> DUMP: estimated 586798 blocks (286.52MB)
00:19:39> DUMP: dumping (Pass III) [directories]
00:19:39> DUMP: dumping (Pass IV) [regular files]
00:24:44> DUMP: 39.10% done, finished in 0:07
00:29:41> DUMP: 81.29% done, finished in 0:02
00:32:21> DUMP: level 8 dump on Thu Nov 10 00:17:41 1994
00:32:21> DUMP: 587200 blocks (286.72MB)
00:32:21> DUMP: DUMP IS DONE
00:32:22> Backup command completed successfully.
00:32:27> ----------
00:32:27> Request Statistics:
00:32:27> Data written : 293640 KB
00:32:27> Elapsed time : 00:14:53
00:32:27> Status : Successful
00:32:27> Performance : 328 KB/sec
00:32:27> Peak rate : 428 KB/sec
00:32:27> Write Retries: 256

00:32:27> ----------
00:32:28> ----------
00:32:28> Request Identification (#16):
00:32:28> Requestor : root@auspex0
00:32:28> Id : vp111
00:32:28> Path : auspex0:/s38
00:32:28> Type : dump
00:32:28> File History : Maintained
00:32:28> Volume label : incr_7
00:32:28> File number : 11
00:32:28> ----------
00:32:39> DUMP: Date of this level 8 dump: Thu Nov 10 00:32:35 1994
00:32:39> DUMP: Date of last level 3 dump: Tue Nov 8 23:46:14 1994
00:32:40> DUMP: Dumping /dev/rvp111 (/s38) to standard output
00:32:40> DUMP: mapping (Pass I) [regular files]
00:34:20> DUMP: mapping (Pass II) [directories]
00:36:15> DUMP: mapping (Pass II) [directories]
00:37:20> DUMP: mapping (Pass II) [directories]
00:37:50> DUMP: mapping (Pass II) [directories]
00:37:57> DUMP: mapping (Pass II) [directories]
00:38:01> DUMP: mapping (Pass II) [directories]
00:38:04> DUMP: estimated 8816 blocks (4.30MB)
00:38:05> DUMP: dumping (Pass III) [directories]
00:38:10> DUMP: dumping (Pass IV) [regular files]
00:38:35> DUMP: level 8 dump on Thu Nov 10 00:32:35 1994
00:38:35> DUMP: 8942 blocks (4.37MB)
00:38:35> DUMP: DUMP IS DONE
00:38:35> Backup command completed successfully.
00:38:39> ----------
00:38:39> Request Statistics:
00:38:39> Data written : 4500 KB
00:38:39> Elapsed time : 00:06:11
00:38:39> Status : Successful
00:38:39> Performance : 12 KB/sec
00:38:39> Peak rate : 0 KB/sec
00:38:40> Write Retries: 4
00:38:40> ----------
00:38:40> ----------
00:38:40> Request Identification (#17):
00:38:40> Requestor : root@auspex0
00:38:40> Id : vp112
00:38:40> Path : auspex0:/s39
00:38:40> Type : dump
00:38:40> File History : Maintained
00:38:42> Volume label : incr_7
00:38:42> File number : 12
00:38:42> ----------
00:38:52> DUMP: Date of this level 8 dump: Thu Nov 10 00:38:48 1994
00:38:52> DUMP: Date of last level 3 dump: Wed Nov 9 00:01:25 1994
00:38:53> DUMP: Dumping /dev/rvp112 (/s39) to standard output
00:38:53> DUMP: mapping (Pass I) [regular files]
00:40:34> DUMP: mapping (Pass II) [directories]
00:40:54> DUMP: mapping (Pass II) [directories]
00:41:07> DUMP: estimated 239828 blocks (117.10MB)
00:41:08> DUMP: dumping (Pass III) [directories]
00:41:37> DUMP: dumping (Pass IV) [regular files]
00:46:25> DUMP: 92.27% done, finished in 0:00
00:46:38> DUMP: level 8 dump on Thu Nov 10 00:38:48 1994
00:46:38> DUMP: 240468 blocks (117.42MB)
00:46:38> DUMP: DUMP IS DONE
00:46:40> Backup command completed successfully.

00:46:43> ------------------------
00:46:43> Request Statistics:
00:46:43> Data written : 120240 KB
00:46:43> Elapsed time : 00:08:03
00:46:43> Status : Successful
00:46:43> Performance : 248 KB/sec
00:46:43> Peak rate : 428 KB/sec
00:46:44> Write Retries: 83
00:46:44> --
00:46:45> --
00:46:45> Request Identification (#18):
00:46:45> Requestor : root@auspex0
00:46:45> Id : vp113
00:46:45> Path : auspex0:/s40
00:46:45> Type : dump
00:46:45> File History : Maintained
00:46:46> Volume label : incr_7
00:46:46> File number : 13
00:46:46> ------------------------
00:46:56> DUMP: Date of this level 8 dump: Thu Nov 10 00:46:53 1994
00:46:56> DUMP: Date of last level 3 dump: Wed Nov 9 00:05:56 1994
00:46:57> DUMP: Dumping /dev/rvp113 (/s40) to standard output
00:46:57> DUMP: mapping (Pass I) [regular files]
00:48:38> DUMP: mapping (Pass II) [directories]
00:48:40> DUMP: estimated 54 blocks (27KB)
00:48:41> DUMP: dumping (Pass III) [directories]
00:48:42> DUMP: dumping (Pass IV) [regular files]
00:48:47> DUMP: level 8 dump on Thu Nov 10 00:46:53 1994
00:48:47> DUMP: 502 blocks (251KB)
00:48:47> DUMP: DUMP IS DONE
00:48:48> Backup command completed successfully.
00:48:59> ------------------------
00:48:59> Request Statistics:
00:48:59> Data written : 300 KB
00:48:59> Elapsed time : 00:02:14
00:48:59> Status : Successful
00:48:59> Performance : 2 KB/sec
00:48:59> Peak rate : 0 KB/sec
00:49:00> --
00:49:00> --
00:49:00> Request Identification (#19):
00:49:00> Requestor : root@auspex0
00:49:01> Id : vp114
00:49:01> Path : auspex0:/s41
00:49:01> Type : dump
00:49:01> File History : Maintained
00:49:01> Volume label : incr_7
00:49:01> File number : 14
00:49:01> ------------------------
00:49:12> DUMP: Date of this level 8 dump: Thu Nov 10 00:49:08 1994
00:49:12> DUMP: Date of last level 3 dump: Wed Nov 9 00:09:37 1994
00:49:12> DUMP: Dumping /dev/rvp114 (/s41) to standard output
00:49:13> DUMP: mapping (Pass I) [regular files]
00:50:52> DUMP: mapping (Pass II) [directories]
00:51:00> DUMP: estimated 250 blocks (125KB)
00:51:05> DUMP: dumping (Pass III) [directories]
00:51:09> DUMP: dumping (Pass IV) [regular files]
00:51:12> DUMP: level 8 dump on Thu Nov 10 00:49:08 1994
00:51:12> DUMP: 906 blocks (453KB)
00:51:12> DUMP: DUMP IS DONE
00:51:13> Backup command completed successfully.

00:51:25> ------------------------
00:51:25> Request Statistics:
00:51:25> Data written : 480 KB
00:51:25> Elapsed time : 00:02:25
00:51:25> Status : Successful
00:51:25> Performance : 3 KB/sec
00:51:25> Peak rate : 0 KB/sec
00:51:25> --
00:51:26> --
00:51:26> Request Identification (#20):
00:51:26> Requestor : root@auspex0
00:51:26> Id : vp115
00:51:26> Path : auspex0:/s42
00:51:26> Type : dump
00:51:26> File History : Maintained
00:51:27> Volume label : incr_7
00:51:27> File number : 15
00:51:27> ------------------------
00:51:37> DUMP: Date of this level 8 dump: Thu Nov 10 00:51:34 1994
00:51:37> DUMP: Date of last level 3 dump: Wed Nov 9 00:12:15 1994
00:51:37> DUMP: Dumping /dev/rvp115 (/s42) to standard output
00:51:39> DUMP: mapping (Pass I) [regular files]
00:53:20> DUMP: mapping (Pass II) [directories]
00:53:34> DUMP: mapping (Pass II) [directories]
00:53:44> DUMP: mapping (Pass II) [directories]
00:53:48> DUMP: estimated 8272 blocks (4.04MB)
00:53:49> DUMP: dumping (Pass III) [directories]
00:53:58> DUMP: dumping (Pass IV) [regular files]
00:54:31> DUMP: level 8 dump on Thu Nov 10 00:51:34 1994
00:54:31> DUMP: 8338 blocks (4.07MB)
00:54:31> DUMP: DUMP IS DONE
00:54:32> Backup command completed successfully.
00:54:35> ------------------------
00:54:35> Request Statistics:
00:54:35> Data written : 4200 KB
00:54:35> Elapsed time : 00:03:09
00:54:35> Status : Successful
00:54:35> Performance : 22 KB/sec
00:54:35> Peak rate : 0 KB/sec
00:54:36> Write Retries: 4
00:54:36> --
00:54:36> --
00:54:36> Request Identification (#21):
00:54:36> Requestor : root@auspex0
00:54:36> Id : vp116
00:54:36> Path : auspex0:/s43
00:54:36> Type : dump
00:54:36> File History : Maintained
00:54:37> Volume label : incr_7
00:54:37> File number : 16
00:54:37> ------------------------
00:54:48> DUMP: Date of this level 8 dump: Thu Nov 10 00:54:43 1994
00:54:48> DUMP: Date of last level 3 dump: Wed Nov 9 00:17:44 1994
00:54:48> DUMP: Dumping /dev/rvp116 (/s43) to standard output
00:54:49> DUMP: mapping (Pass I) [regular files]
00:56:28> DUMP: mapping (Pass II) [directories]
00:56:30> DUMP: estimated 50 blocks (25KB)
00:56:31> DUMP: dumping (Pass III) [directories]
00:56:32> DUMP: dumping (Pass IV) [regular files]
00:56:38> DUMP: level 8 dump on Thu Nov 10 00:54:43 1994
00:56:38> DUMP: 498 blocks (249KB)

00:56:39> DUMP: DUMP IS DONE
00:56:39> Backup command completed successfully.
00:56:51> ----------
00:56:51> Request Statistics:
00:56:51> Data written : 300 KB
00:56:51> Elapsed time : 00:02:15
00:56:51> Status : Successful
00:56:51> Performance : 2 KB/sec
00:56:51> Peak rate : 0 KB/sec
00:56:51> ----------
00:56:52> ----------
00:56:52> Request Identification (#22):
00:56:52> Requestor : root@auspex0
00:56:52> Id : vp117
00:56:52> Path : auspex0:/s44
00:56:52> Type : dump
00:56:52> File History : Maintained
00:56:53> Volume label : incr_7
00:56:53> File number : 17
00:56:53> ----------
00:57:05> DUMP: Date of this level 8 dump: Thu Nov 10 00:57:01 1994
00:57:05> DUMP: Date of last level 3 dump: Wed Nov 9 00:19:57 1994
00:57:05> DUMP: Dumping /dev/rvp117 (/s44) to standard output
00:57:05> DUMP: mapping (Pass I) [regular files]
00:57:53> DUMP: mapping (Pass II) [directories]
00:57:53> DUMP: estimated 50 blocks (25KB)
00:57:54> DUMP: dumping (Pass III) [directories]
00:57:55> DUMP: dumping (Pass IV) [regular files]
00:57:59> DUMP: level 8 dump on Thu Nov 10 00:57:01 1994
00:57:59> DUMP: 274 blocks (137KB)
00:57:59> DUMP: DUMP IS DONE
00:58:00> Backup command completed successfully.
00:58:05> ----------
00:58:05> Request Statistics:
00:58:05> Data written : 180 KB
00:58:05> Elapsed time : 00:01:13
00:58:05> Status : Successful
00:58:05> Performance : 2 KB/sec
00:58:05> Peak rate : 0 KB/sec
00:58:05> ----------
00:58:06> ----------
00:58:06> Request Identification (#23):
00:58:06> Requestor : root@auspex0
00:58:06> Id : vp95
00:58:06> Path : auspex0:/s22
00:58:06> Type : dump
00:58:06> File History : Maintained
00:58:07> Volume label : incr_7
00:58:07> File number : 18
00:58:07> ----------
00:58:17> DUMP: Date of this level 8 dump: Thu Nov 10 00:58:14 1994
00:58:17> DUMP: Date of last level 3 dump: Wed Nov 9 00:21:13 1994
00:58:18> DUMP: Dumping /dev/rvp95 (/s22) to standard output
00:58:18> DUMP: mapping (Pass I) [regular files]
01:00:15> DUMP: mapping (Pass II) [directories]
01:01:31> DUMP: mapping (Pass II) [directories]
01:01:56> DUMP: mapping (Pass II) [directories]
01:02:09> DUMP: estimated 3230 blocks (1.58MB)
01:02:11> DUMP: dumping (Pass III) [directories]
01:02:20> DUMP: dumping (Pass IV) [regular files]
01:02:39> DUMP: level 8 dump on Thu Nov 10 00:58:14 1994

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01:02:39>  DUMP: 4232 blocks (2.07MB)
01:02:39>  DUMP: DUMP IS DONE
01:02:40> Backup command completed successfully.
01:02:44> ----------------------
01:02:44> Request Statistics:
01:02:44>  Data written : 2160 KB
01:02:44>  Elapsed time : 00:04:38
01:02:44>  Status      : Successful
01:02:44>  Performance  : 7 KB/sec
01:02:44>  Peak rate    : 0 KB/sec
01:02:45>  Write Retries: 3
01:02:45> ------------------------------------------------------
01:02:45> ------------------------------------------------------
01:02:45> Request Identification (#24):
01:02:45>  Requestor   : root@auspex0
01:02:45>  Id          : vp96
01:02:45>  Path        : auspex0:/s23
01:02:45>  Type        : dump
01:02:45>  File History : Maintained
01:02:46>  Volume label : incr_7
01:02:46>  File number  : 19
01:02:46> ----------------------
01:02:57>  DUMP: Date of this level 8 dump: Thu Nov 10 01:02:53 1994
01:02:57>  DUMP: Date of last level 3 dump: Wed Nov  9 00:26:29 1994
01:02:57>  DUMP: Dumping /dev/rvp96 (/s23) to standard output
01:02:57>  DUMP: mapping (Pass I) [regular files]
01:04:39>  DUMP: mapping (Pass II) [directories]
01:09:24>  DUMP: mapping (Pass II) [directories]
01:11:56>  DUMP: mapping (Pass II) [directories]
01:12:12>  DUMP: estimated 69564 blocks (33.97MB)
01:12:12>  DUMP: dumping (Pass III) [directories]
01:12:32>  DUMP: dumping (Pass IV) [regular files]
01:17:47>  DUMP: 15.01% done, finished in 0:28
01:22:12>  DUMP: 88.15% done, finished in 0:01
01:23:03>  DUMP: level 8 dump on Thu Nov 10 01:02:53 1994
01:23:04>  DUMP: 69748 blocks (34.06MB)
01:23:04>  DUMP: DUMP IS DONE
01:23:12> Backup command completed successfully.
01:23:22> ----------------------
01:23:22> Request Statistics:
01:23:22>  Data written : 34920 KB
01:23:22>  Elapsed time : 00:20:37
01:23:22>  Status      : Successful
01:23:22>  Performance  : 28 KB/sec
01:23:22>  Peak rate    : 133 KB/sec
01:23:23>  Write Retries: 39
01:23:23> ------------------------------------------------------
01:23:24> ------------------------------------------------------
01:23:24> Request Identification (#25):
01:23:24>  Requestor   : root@auspex0
01:23:24>  Id          : vp97
01:23:24>  Path        : auspex0:/s24
01:23:24>  Type        : dump
01:23:24>  File History : Maintained
01:23:25>  Volume label : incr_7
01:23:25>  File number  : 20
01:23:25> ----------------------
01:23:42>  DUMP: Date of this level 8 dump: Thu Nov 10 01:23:38 1994
01:23:42>  DUMP: Date of last level 3 dump: Wed Nov  9 00:37:50 1994
01:23:42>  DUMP: Dumping /dev/rvp97 (/s24) to standard output
01:23:43>  DUMP: mapping (Pass I) [regular files]
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01:27:58> DUMP: mapping (Pass II) [directories]
01:31:02> DUMP: mapping (Pass II) [directories]
01:32:28> DUMP: mapping (Pass II) [directories]
01:32:58> DUMP: estimated 273276 blocks (133.44MB)
01:33:01> DUMP: dumping (Pass III) [directories]
01:34:56> DUMP: dumping (Pass IV) [regular files]
01:38:25> DUMP: 18.95% done, finished in 0:21
01:43:25> DUMP: 44.70% done, finished in 0:12
01:47:58> DUMP: 74.04% done, finished in 0:05
01:52:52> DUMP: level 8 dump on Thu Nov 10 01:23:38 1994
01:52:52> DUMP: 273212 blocks (133.40MB)
01:52:52> DUMP: DUMP IS DONE
01:52:56> Backup command completed successfully.
01:53:04> ----------
01:53:04> Request Statistics:
01:53:04> Data written : 136620 KB
01:53:04> Elapsed time : 00:29:39
01:53:04> Status : Successful
01:53:04> Performance : 76 KB/sec
01:53:04> Peak rate : 162 KB/sec
01:53:05> Write Retries: 137
01:53:05> ----------
01:53:06> ----------
01:53:06> Request Identification (#26):
01:53:06> Requestor : root@auspex0
01:53:06> Id : vp98
01:53:06> Path : auspex0:/s25
01:53:06> Type : dump
01:53:06> File History : Maintained
01:53:07> Volume label : incr_7
01:53:07> File number : 21
01:53:07> ----------
01:53:23> DUMP: Date of this level 8 dump: Thu Nov 10 01:53:19 1994
01:53:23> DUMP: Date of last level 3 dump: Wed Nov 9 00:45:30 1994
01:53:24> DUMP: Dumping /dev/rvp98 (/s25) to standard output
01:53:24> DUMP: mapping (Pass I) [regular files]
01:57:11> DUMP: mapping (Pass II) [directories]
02:01:16> DUMP: estimated 274 blocks (137KB)
02:01:25> DUMP: dumping (Pass III) [directories]
02:03:37> DUMP: dumping (Pass IV) [regular files]
02:03:42> DUMP: level 8 dump on Thu Nov 10 01:53:19 1994
02:03:42> DUMP: 12216 blocks (5.96MB)
02:03:42> DUMP: DUMP IS DONE
02:04:00> Backup command completed successfully.
02:04:07> ----------
02:04:07> Request Statistics:
02:04:07> Data written : 6120 KB
02:04:07> Elapsed time : 00:11:00
02:04:07> Status : Successful
02:04:07> Performance : 9 KB/sec
02:04:07> Peak rate : 9 KB/sec
02:04:07> Write Retries: 3
02:04:07> ----------
02:04:09> ----------
02:04:09> Request Identification (#27):
02:04:09> Requestor : root@auspex0
02:04:09> Id : vp99
02:04:09> Path : auspex0:/s26
02:04:09> Type : dump
02:04:09> File History : Maintained
02:04:10> Volume label : incr_7

02:04:10> File number : 22
02:04:10> ----------
02:04:24> DUMP: Date of this level 8 dump: Thu Nov 10 02:04:20 1994
02:04:24> DUMP: Date of last level 3 dump: Wed Nov 9 00:51:40 1994
02:04:24> DUMP: Dumping /dev/rvp99 (/s26) to standard output
02:04:26> DUMP: mapping (Pass I) [regular files]
02:08:18> DUMP: mapping (Pass II) [directories]
02:08:30> DUMP: estimated 204 blocks (102KB)
02:08:32> DUMP: dumping (Pass III) [directories]
02:08:45> DUMP: dumping (Pass IV) [regular files]
02:09:07> DUMP: level 8 dump on Thu Nov 10 02:04:20 1994
02:09:07> DUMP: 1812 blocks (906KB)
02:09:08> DUMP: DUMP IS DONE
02:09:10> Backup command completed successfully.
02:09:23> ----------
02:09:23> Request Statistics:
02:09:23> Data written : 960 KB
02:09:23> Elapsed time : 00:05:14
02:09:23> Status : Successful
02:09:23> Performance : 3 KB/sec
02:09:23> Peak rate : 0 KB/sec
02:09:24> ----------
02:09:25> ----------
02:09:25> Request Identification (#28):
02:09:25> Requestor : root@auspex0
02:09:25> Id : vp1
02:09:25> Path : auspex0:/s1
02:09:25> Type : dump
02:09:25> File History : Maintained
02:09:26> Volume label : incr_7
02:09:26> File number : 23
02:09:26> ----------
02:09:39> DUMP: Date of this level 4 dump: Thu Nov 10 02:09:36 1994
02:09:39> DUMP: Date of last level 0 dump: Sat Nov 5 02:10:15 1994
02:09:40> DUMP: Dumping /dev/rvp1 (/s1) to standard output
02:09:41> DUMP: mapping (Pass I) [regular files]
02:12:16> DUMP: mapping (Pass II) [directories]
02:13:06> DUMP: mapping (Pass II) [directories]
02:13:28> DUMP: estimated 83102 blocks (40.58MB)
02:13:28> DUMP: dumping (Pass III) [directories]
02:15:01> DUMP: dumping (Pass IV) [regular files]
02:18:35> DUMP: 68.30% done, finished in 0:02
02:20:47> DUMP: level 4 dump on Thu Nov 10 02:09:36 1994
02:20:49> DUMP: 83818 blocks (40.93MB)
02:20:50> DUMP: DUMP IS DONE
02:20:53> Backup command completed successfully.
02:20:57> ----------
02:20:57> Request Statistics:
02:20:57> Data written : 41940 KB
02:20:57> Elapsed time : 00:11:32
02:20:57> Status : Successful
02:20:57> Performance : 60 KB/sec
02:20:57> Peak rate : 200 KB/sec
02:20:58> Write Retries: 66
02:20:58> ----------
02:20:59> ----------
02:20:59> Request Identification (#29):
02:20:59> Requestor : root@auspex0
02:20:59> Id : vp10
02:20:59> Path : auspex0:/s10
02:20:59> Type : dump

02:20:59> File History : Maintained
02:21:00> Volume label : incr_7
02:21:00> File number : 24
02:21:00> ----------
02:21:13> DUMP: Date of this level 4 dump: Thu Nov 10 02:21:09 1994
02:21:13> DUMP: Date of last level 0 dump: Sat Nov 5 03:57:53 1994
02:21:13> DUMP: Dumping /dev/rvp10 (/s10) to standard output
02:21:16> DUMP: mapping (Pass I) [regular files]
02:23:30> DUMP: mapping (Pass II) [directories]
02:24:40> DUMP: mapping (Pass II) [directories]
02:25:13> DUMP: mapping (Pass II) [directories]
02:25:27> DUMP: estimated 172132 blocks (84.05MB)
02:25:30> DUMP: dumping (Pass III) [directories]
02:25:58> DUMP: dumping (Pass IV) [regular files]
02:30:41> DUMP: 41.86% done, finished in 0:07
02:35:32> DUMP: 90.38% done, finished in 0:01
02:36:40> DUMP: level 4 dump on Thu Nov 10 02:21:09 1994
02:36:40> DUMP: 172372 blocks (84.17MB)
02:36:40> DUMP: DUMP IS DONE
02:36:43> Backup command completed successfully.
02:36:49> ----------
02:36:49> Request Statistics:
02:36:49> Data written : 86220 KB
02:36:49> Elapsed time : 00:15:50
02:36:49> Status : Successful
02:36:49> Performance : 90 KB/sec
02:36:49> Peak rate : 272 KB/sec
02:36:50> Write Retries: 105
02:36:50> ----------
02:36:51> ----------
02:36:51> Request Identification (#30):
02:36:51> Requestor : root@auspex0
02:36:51> Id : vp2
02:36:51> Path : auspex0:/s2
02:36:51> Type : dump
02:36:51> File History : Maintained
02:36:51> Volume label : incr_7
02:36:51> File number : 25
02:36:51> ----------
02:37:05> DUMP: Date of this level 4 dump: Thu Nov 10 02:37:02 1994
02:37:05> DUMP: Date of last level 0 dump: Sat Nov 5 05:18:24 1994
02:37:07> DUMP: Dumping /dev/rvp2 (/s2) to standard output
02:37:07> DUMP: mapping (Pass I) [regular files]
02:39:33> DUMP: mapping (Pass II) [directories]
02:40:45> DUMP: mapping (Pass II) [directories]
02:41:08> DUMP: mapping (Pass II) [directories]
02:41:19> DUMP: mapping (Pass II) [directories]
02:41:27> DUMP: mapping (Pass II) [directories]
02:41:32> DUMP: estimated 24590 blocks (12.01MB)
02:41:35> DUMP: dumping (Pass III) [directories]
02:41:57> DUMP: dumping (Pass IV) [regular files]
02:43:18> DUMP: level 4 dump on Thu Nov 10 02:37:02 1994
02:43:18> DUMP: 24696 blocks (12.06MB)
02:43:19> DUMP: DUMP IS DONE
02:43:20> Backup command completed successfully.
02:43:24> ----------
02:43:24> Request Statistics:
02:43:24> Data written : 12360 KB
02:43:24> Elapsed time : 00:06:33
02:43:24> Status : Successful
02:43:24> Performance : 31 KB/sec

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02:43:24>  Peak rate   : 260 KB/sec
02:43:25>  Write Retries: 13
02:43:25> ------------------------------------------------
02:43:26> ------------------------------------------------
02:43:26> Request Identification (#31):
02:43:26>  Requestor   : root@auspex0
02:43:26>  Id          : vp21
02:43:26>  Path        : auspex0:/s11
02:43:26>  Type        : dump
02:43:26>  File History : Maintained
02:43:27>  Volume label : incr_7
02:43:27>  File number  : 26
02:43:27> -------------------------
02:43:51>  DUMP: Date of this level 4 dump: Thu Nov 10 02:43:39 1994
02:43:51>  DUMP: Date of last level 0 dump: Sat Nov  5 08:31:45 1994
02:43:52>  DUMP: Dumping /dev/rvp21 (/s11) to standard output
02:43:52>  DUMP: mapping (Pass I) [regular files]
02:47:00>  DUMP: mapping (Pass II) [directories]
02:47:37>  DUMP: estimated 174 blocks (87KB)
02:47:37>  DUMP: dumping (Pass III) [directories]
02:48:21>  DUMP: dumping (Pass IV) [regular files]
02:48:42>  DUMP: level 4 dump on Thu Nov 10 02:43:39 1994
02:48:42>  DUMP: 4324 blocks (2.11MB)
02:48:42>  DUMP: DUMP IS DONE
02:48:51> Backup command completed successfully.
02:49:04> -------------------------
02:49:04> Request Statistics:
02:49:04>  Data written : 2220 KB
02:49:04>  Elapsed time : 00:05:38
02:49:04>  Status       : Successful
02:49:04>  Performance  : 6 KB/sec
02:49:04>  Peak rate    : 0 KB/sec
02:49:05> ------------------------------------------------
02:49:06> ------------------------------------------------
02:49:06> Request Identification (#32):
02:49:06>  Requestor   : root@auspex0
02:49:06>  Id          : vp22
02:49:06>  Path        : auspex0:/s12
02:49:06>  Type        : dump
02:49:06>  File History : Maintained
02:49:07>  Volume label : incr_7
02:49:07>  File number  : 27
02:49:07> -------------------------
02:49:31>  DUMP: Date of this level 4 dump: Thu Nov 10 02:49:17 1994
02:49:31>  DUMP: Date of last level 0 dump: Sat Nov  5 08:55:55 1994
02:49:31>  DUMP: Dumping /dev/rvp22 (/s12) to standard output
02:49:32>  DUMP: mapping (Pass I) [regular files]
02:52:20>  DUMP: mapping (Pass II) [directories]
02:53:34>  DUMP: mapping (Pass II) [directories]
02:54:13>  DUMP: mapping (Pass II) [directories]
02:54:29>  DUMP: mapping (Pass II) [directories]
02:54:44>  DUMP: estimated 1070462 blocks (522.69MB)
02:54:44>  DUMP: dumping (Pass III) [directories]
02:56:13>  DUMP: dumping (Pass IV) [regular files]
02:59:46>  DUMP: 6.48% done, finished in 1:12
03:04:57>  DUMP: 15.97% done, finished in 0:52
03:09:54>  DUMP: 24.76% done, finished in 0:45
03:14:53>  DUMP: 34.09% done, finished in 0:38
03:19:45>  DUMP: 43.25% done, finished in 0:32
03:24:46>  DUMP: 53.90% done, finished in 0:25
03:30:04>  DUMP: 64.36% done, finished in 0:19
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03:34:45>  DUMP: 75.12% done, finished in 0:13
03:39:45>  DUMP: 86.95% done, finished in 0:06
03:44:44>  DUMP: 99.39% done, finished in 0:00
03:45:09>  DUMP: level 4 dump on Thu Nov 10 02:49:17 1994
03:45:10>  DUMP: 1070600 blocks (522.75MB)
03:45:10>  DUMP: DUMP IS DONE
03:45:29> Backup command completed successfully.
03:45:37> ----------------------
03:45:37> Request Statistics:
03:45:37>  Data written : 535320 KB
03:45:37>  Elapsed time : 00:56:31
03:45:37>  Status      : Successful
03:45:37>  Performance  : 157 KB/sec
03:45:37>  Peak rate    : 250 KB/sec
03:45:38>  Write Retries: 772
03:45:38> ------------------------------------------------
03:45:39> ------------------------------------------------
03:45:39> Request Identification (#33):
03:45:39>  Requestor   : root@auspex0
03:45:39>  Id          : vp23
03:45:39>  Path        : auspex0:/s13
03:45:39>  Type        : dump
03:45:39>  File History : Maintained
03:45:40>  Volume label : incr_7
03:45:40>  File number  : 28
03:45:40> ----------------------
03:45:58>  DUMP: Date of this level 4 dump: Thu Nov 10 03:45:50 1994
03:45:58>  DUMP: Date of last level 0 dump: Sat Nov  5 11:12:13 1994
03:45:59>  DUMP: Dumping /dev/rvp23 (/s13) to standard output
03:45:59>  DUMP: mapping (Pass I) [regular files]
03:49:00>  DUMP: mapping (Pass II) [directories]
03:50:12>  DUMP: mapping (Pass II) [directories]
03:50:39>  DUMP: mapping (Pass II) [directories]
03:50:55>  DUMP: estimated 32868 blocks (16.05MB)
03:50:56>  DUMP: dumping (Pass III) [directories]
03:52:31>  DUMP: dumping (Pass IV) [regular files]
03:54:10>  DUMP: level 4 dump on Thu Nov 10 03:45:50 1994
03:54:10>  DUMP: 33182 blocks (16.20MB)
03:54:10>  DUMP: DUMP IS DONE
03:54:20> Backup command completed successfully.
03:54:27> ----------------------
03:54:27> Request Statistics:
03:54:27>  Data written : 16620 KB
03:54:27>  Elapsed time : 00:08:48
03:54:27>  Status      : Successful
03:54:27>  Performance  : 31 KB/sec
03:54:27>  Peak rate    : 272 KB/sec
03:54:27>  Write Retries: 34
03:54:27> ------------------------------------------------
03:54:28> ------------------------------------------------
03:54:28> Request Identification (#34):
03:54:28>  Requestor   : root@auspex0
03:54:28>  Id          : vp24
03:54:28>  Path        : auspex0:/s14
03:54:28>  Type        : dump
03:54:28>  File History : Maintained
03:54:29>  Volume label : incr_7
03:54:29>  File number  : 29
03:54:29> ----------------------
03:54:45>  DUMP: Date of this level 4 dump: Thu Nov 10 03:54:38 1994
03:54:45>  DUMP: Date of last level 0 dump: Sat Nov  5 14:02:25 1994
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03:54:45> DUMP: Dumping /dev/rvp24 (/s14) to standard output
03:54:47> DUMP: mapping (Pass I) [regular files]
03:56:26> DUMP: mapping (Pass II) [directories]
03:56:42> DUMP: mapping (Pass II) [directories]
03:56:50> DUMP: mapping (Pass II) [directories]
03:56:56> DUMP: mapping (Pass II) [directories]
03:56:58> DUMP: estimated 31002 blocks (15.14MB)
03:57:01> DUMP: dumping (Pass III) [directories]
03:57:03> DUMP: dumping (Pass IV) [regular files]
03:58:20> DUMP: level 4 dump on Thu Nov 10 03:54:38 1994
03:58:20> DUMP: 31042 blocks (15.16MB)
03:58:20> DUMP: DUMP IS DONE
03:58:21> Backup command completed successfully.
03:58:25> ----------
03:58:25> Request Statistics:
03:58:25> Data written : 15540 KB
03:58:25> Elapsed time : 00:03:57
03:58:25> Status : Successful
03:58:25> Performance : 65 KB/sec
03:58:25> Peak rate : 285 KB/sec
03:58:25> Write Retries: 27
03:58:25> ----------
03:58:26> ----------
03:58:26> Request Identification (#35):
03:58:26> Requestor : root@auspex0
03:58:26> Id : vp25
03:58:26> Path : auspex0:/s15
03:58:26> Type : dump
03:58:26> File History : Maintained
03:58:27> Volume label : incr_7
03:58:27> File number : 30
03:58:27> ----------
03:58:40> DUMP: Date of this level 4 dump: Thu Nov 10 03:58:35 1994
03:58:40> DUMP: Date of last level 0 dump: Sat Nov 5 14:51:55 1994
03:58:41> DUMP: Dumping /dev/rvp25 (/s15) to standard output
03:58:42> DUMP: mapping (Pass I) [regular files]
04:00:37> DUMP: mapping (Pass II) [directories]
04:01:36> DUMP: mapping (Pass II) [directories]
04:02:04> DUMP: mapping (Pass II) [directories]
04:02:11> DUMP: estimated 119740 blocks (58.47MB)
04:02:11> DUMP: dumping (Pass III) [directories]
04:02:30> DUMP: dumping (Pass IV) [regular files]
04:07:14> DUMP: level 4 dump on Thu Nov 10 03:58:35 1994
04:07:14> DUMP: 119866 blocks (58.53MB)
04:07:14> DUMP: DUMP IS DONE
04:07:16> Backup command completed successfully.
04:07:21> ----------
04:07:21> Request Statistics:
04:07:21> Data written : 59940 KB
04:07:21> Elapsed time : 00:08:55
04:07:21> Status : Successful
04:07:21> Performance : 112 KB/sec
04:07:21> Peak rate : 315 KB/sec
04:07:22> Write Retries: 84
04:07:22> ----------
04:07:22> ----------
04:07:22> Request Identification (#36):
04:07:22> Requestor : root@auspex0
04:07:22> Id : vp26
04:07:22> Path : auspex0:/s16
04:07:22> Type : dump

04:07:22> File History : Maintained
04:07:23> Volume label : incr_7
04:07:23> File number : 31
04:07:23> ----------
04:07:38> DUMP: Date of this level 4 dump: Thu Nov 10 04:07:32 1994
04:07:38> DUMP: Date of last level 0 dump: Sat Nov 5 16:01:46 1994
04:07:38> DUMP: Dumping /dev/rvp26 (/s16) to standard output
04:07:40> DUMP: mapping (Pass I) [regular files]
04:09:23> DUMP: mapping (Pass II) [directories]
04:10:04> DUMP: mapping (Pass II) [directories]
04:10:22> DUMP: mapping (Pass II) [directories]
04:10:33> DUMP: estimated 241700 blocks (118.02MB)
04:10:35> DUMP: dumping (Pass III) [directories]
04:14:48> DUMP: dumping (Pass IV) [regular files]
04:15:43> DUMP: 15.07% done, finished in 0:28
04:20:45> DUMP: 88.62% done, finished in 0:01
04:21:39> DUMP: level 4 dump on Thu Nov 10 04:07:32 1994
04:21:40> DUMP: 241804 blocks (118.07MB)
04:21:40> DUMP: DUMP IS DONE
04:22:51> Backup command completed successfully.
04:23:04> ----------
04:23:04> Request Statistics:
04:23:04> Data written : 120960 KB
04:23:04> Elapsed time : 00:15:42
04:23:04> Status : Successful
04:23:04> Performance : 128 KB/sec
04:23:04> Peak rate : 333 KB/sec
04:23:04> Write Retries: 196
04:23:04> ----------
04:23:05> ----------
04:23:05> Request Identification (#37):
04:23:05> Requestor : root@auspex0
04:23:05> Id : vp27
04:23:05> Path : auspex0:/s17
04:23:05> Type : dump
04:23:05> File History : Maintained
04:23:05> Volume label : incr_7
04:23:05> File number : 32
04:23:05> ----------
04:23:20> DUMP: Date of this level 4 dump: Thu Nov 10 04:23:16 1994
04:23:20> DUMP: Date of last level 0 dump: Sat Nov 5 18:40:18 1994
04:23:21> DUMP: Dumping /dev/rvp27 (/s17) to standard output
04:23:22> DUMP: mapping (Pass I) [regular files]
04:25:11> DUMP: mapping (Pass II) [directories]
04:26:04> DUMP: mapping (Pass II) [directories]
04:26:30> DUMP: mapping (Pass II) [directories]
04:26:41> DUMP: estimated 193790 blocks (94.62MB)
04:26:45> DUMP: dumping (Pass III) [directories]
04:27:02> DUMP: dumping (Pass IV) [regular files]
04:31:51> DUMP: 70.13% done, finished in 0:02
04:33:30> DUMP: level 4 dump on Thu Nov 10 04:23:16 1994
04:33:30> DUMP: 193954 blocks (94.70MB)
04:33:30> DUMP: DUMP IS DONE
04:33:33> Backup command completed successfully.
04:33:37> ----------
04:33:37> Request Statistics:
04:33:37> Data written : 97020 KB
04:33:37> Elapsed time : 00:10:32
04:33:37> Status : Successful
04:33:37> Performance : 153 KB/sec
04:33:37> Peak rate : 315 KB/sec

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04:33:38>  Write Retries: 229
04:33:38> ----------------------------------------------------
04:33:39> ----------------------------------------------------
04:33:39> Request Identification (#38):
04:33:39>  Requestor   : root@auspex0
04:33:39>  Id          : vp28
04:33:39>  Path        : auspex0:/s18
04:33:39>  Type        : dump
04:33:39>  File History : Maintained
04:33:39>  Volume label : incr_7
04:33:39>  File number  : 33
04:33:39> ------------------------
04:33:54>  DUMP: Date of this level 4 dump: Thu Nov 10 04:33:48 1994
04:33:54>  DUMP: Date of last level 0 dump: Sat Nov  5 19:35:16 1994
04:33:54>  DUMP: Dumping /dev/rvp28 (/s18) to standard output
04:33:54>  DUMP: mapping (Pass I) [regular files]
04:35:52>  DUMP: mapping (Pass II) [directories]
04:37:55>  DUMP: mapping (Pass II) [directories]
04:38:33>  DUMP: mapping (Pass II) [directories]
04:38:48>  DUMP: estimated 884446 blocks (431.86MB)
04:38:51>  DUMP: dumping (Pass III) [directories]
04:43:21>  DUMP: dumping (Pass IV) [regular files]
04:44:15>  DUMP: 2.38% done, finished in 3:26
04:48:51>  DUMP: 5.29% done, finished in 2:59
04:54:29>  DUMP: 8.15% done, finished in 2:50
04:58:58>  DUMP: 10.72% done, finished in 2:47
05:04:10>  DUMP: 13.51% done, finished in 2:40
05:09:06>  DUMP: 17.31% done, finished in 2:23
05:13:59>  DUMP: 20.60% done, finished in 2:15
05:18:59>  DUMP: 23.01% done, finished in 2:14
05:24:11>  DUMP: 25.67% done, finished in 2:10
05:29:13>  DUMP: 28.91% done, finished in 2:03
05:34:08>  DUMP: 31.36% done, finished in 2:00
05:39:10>  DUMP: 33.84% done, finished in 1:57
05:44:20>  DUMP: 36.52% done, finished in 1:53
05:49:08>  DUMP: 39.57% done, finished in 1:47
05:54:23>  DUMP: 42.32% done, finished in 1:42
05:59:20>  DUMP: 45.21% done, finished in 1:37
06:04:16>  DUMP: 48.17% done, finished in 1:31
06:09:17>  DUMP: 51.15% done, finished in 1:26
06:14:19>  DUMP: 54.09% done, finished in 1:20
06:19:13>  DUMP: 56.96% done, finished in 1:15
06:24:22>  DUMP: 60.02% done, finished in 1:10
06:29:14>  DUMP: 63.42% done, finished in 1:03
06:34:26>  DUMP: 65.74% done, finished in 1:00
06:39:16>  DUMP: 68.43% done, finished in 0:55
06:44:20>  DUMP: 71.00% done, finished in 0:51
06:49:36>  DUMP: 74.01% done, finished in 0:45
06:54:26>  DUMP: 76.84% done, finished in 0:40
06:59:37>  DUMP: 79.93% done, finished in 0:35
07:04:34>  DUMP: 82.99% done, finished in 0:29
07:09:45>  DUMP: 86.43% done, finished in 0:23
07:14:43>  DUMP: 89.17% done, finished in 0:18
07:19:35>  DUMP: 92.26% done, finished in 0:13
07:24:47>  DUMP: 94.99% done, finished in 0:08
07:30:08>  DUMP: 96.66% done, finished in 0:05
07:33:13>  DUMP: level 4 dump on Thu Nov 10 04:33:48 1994
07:33:13>  DUMP: 872294 blocks (425.92MB)
07:33:58>  DUMP: DUMP IS DONE
07:34:57> Backup command completed successfully.
07:35:12> ------------------------
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07:35:12> Request Statistics:
07:35:12>  Data written : 436200 KB
07:35:12>  Elapsed time : 03:01:33
07:35:12>  Status      : Successful
07:35:12>  Performance  : 40 KB/sec
07:35:12>  Peak rate    : 75 KB/sec
07:35:13>  Write Retries: 1151
07:35:13> ------------------------------------------------
07:35:14> ------------------------------------------------
07:35:14> Request Identification (#39):
07:35:14>  Requestor    : root@auspex0
07:35:14>  Id           : vp29
07:35:14>  Path         : auspex0:/s19
07:35:14>  Type         : dump
07:35:14>  File History : Maintained
07:35:15>  Volume label : incr_7
07:35:15>  File number  : 34
07:35:15> -------------------------
07:35:35>  DUMP: Date of this level 4 dump: Thu Nov 10 07:35:27 1994
07:35:35>  DUMP: Date of last level 0 dump: Sat Nov  5 23:56:47 1994
07:35:35>  DUMP: Dumping /dev/rvp29 (/s19) to standard output
07:35:36>  DUMP: mapping (Pass I) [regular files]
07:37:22>  DUMP: mapping (Pass II) [directories]
07:38:26>  DUMP: mapping (Pass II) [directories]
07:38:53>  DUMP: mapping (Pass II) [directories]
07:39:03>  DUMP: mapping (Pass II) [directories]
07:39:11>  DUMP: mapping (Pass II) [directories]
07:39:18>  DUMP: estimated 461628 blocks (225.40MB)
07:39:19>  DUMP: dumping (Pass III) [directories]
07:40:00>  DUMP: dumping (Pass IV) [regular files]
07:44:29>  DUMP: 17.46% done, finished in 0:24
07:49:40>  DUMP: 21.91% done, finished in 0:36
07:54:35>  DUMP: 38.65% done, finished in 0:24
07:59:38>  DUMP: 79.78% done, finished in 0:05
08:02:19>  DUMP: level 4 dump on Thu Nov 10 07:35:27 1994
08:02:20>  DUMP: 457076 blocks (223.18MB)
08:02:20>  DUMP: DUMP IS DONE
08:02:31> Backup command completed successfully.
08:02:37> -------------------------
08:02:37> Request Statistics:
08:02:37>  Data written : 228540 KB
08:02:37>  Elapsed time : 00:27:23
08:02:37>  Status      : Successful
08:02:37>  Performance  : 139 KB/sec
08:02:37>  Peak rate    : 333 KB/sec
08:02:38>  Write Retries: 533
08:02:38> ------------------------------------------------
08:02:39> ------------------------------------------------
08:02:39> Request Identification (#40):
08:02:39>  Requestor    : root@auspex0
08:02:39>  Id           : vp3
08:02:39>  Path         : auspex0:/s3
08:02:39>  Type         : dump
08:02:39>  File History : Maintained
08:02:40>  Volume label : incr_7
08:02:40>  File number  : 35
08:02:40> -------------------------
08:02:57>  DUMP: Date of this level 4 dump: Thu Nov 10 08:02:49 1994
08:02:57>  DUMP: Date of last level 0 dump: Sun Nov  6 01:31:17 1994
08:02:57>  DUMP: Dumping /dev/rvp3 (/s3) to standard output
08:02:59>  DUMP: mapping (Pass I) [regular files]
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08:04:42> DUMP: mapping (Pass II) [directories]
08:05:25> DUMP: estimated 300 blocks (150KB)
08:05:30> DUMP: dumping (Pass III) [directories]
08:05:53> DUMP: dumping (Pass IV) [regular files]
08:06:00> DUMP: level 4 dump on Thu Nov 10 08:02:49 1994
08:06:00> DUMP: 2270 blocks (1.11MB)
08:06:00> DUMP: DUMP IS DONE
08:06:02> Backup command completed successfully.
08:06:14> ----------
08:06:14> Request Statistics:
08:06:14> Data written : 1140 KB
08:06:14> Elapsed time : 00:03:35
08:06:14> Status : Successful
08:06:14> Performance : 5 KB/sec
08:06:14> Peak rate : 0 KB/sec
08:06:15> ----------
08:06:16> ----------
08:06:16> Request Identification (#41):
08:06:16> Requestor : root@auspex0
08:06:16> Id : vp30
08:06:16> Path : auspex0:/s20
08:06:16> Type : dump
08:06:16> File History : Maintained
08:06:17> Volume label : incr_7
08:06:17> File number : 36
08:06:17> ----------
08:06:32> DUMP: Date of this level 4 dump: Thu Nov 10 08:06:25 1994
08:06:32> DUMP: Date of last level 0 dump: Sun Nov 6 03:52:31 1994
08:06:32> DUMP: Dumping /dev/rvp30 (/s20) to standard output
08:06:34> DUMP: mapping (Pass I) [regular files]
08:08:27> DUMP: mapping (Pass II) [directories]
08:09:09> DUMP: mapping (Pass II) [directories]
08:09:28> DUMP: mapping (Pass II) [directories]
08:09:37> DUMP: estimated 137706 blocks (67.24MB)
08:09:40> DUMP: dumping (Pass III) [directories]
08:10:08> DUMP: dumping (Pass IV) [regular files]
08:14:32> DUMP: level 4 dump on Thu Nov 10 08:06:25 1994
08:14:33> DUMP: 137910 blocks (67.34MB)
08:14:33> DUMP: DUMP IS DONE
08:14:36> Backup command completed successfully.
08:14:40> ----------
08:14:40> Request Statistics:
08:14:40> Data written : 69000 KB
08:14:40> Elapsed time : 00:08:24
08:14:40> Status : Successful
08:14:40> Performance : 136 KB/sec
08:14:40> Peak rate : 333 KB/sec
08:14:41> Write Retries: 213
08:14:41> ----------
08:14:42> ----------
08:14:42> Request Identification (#42):
08:14:42> Requestor : root@auspex0
08:14:42> Id : vp31
08:14:42> Path : auspex0:/s21
08:14:42> Type : dump
08:14:42> File History : Maintained
08:14:43> Volume label : incr_7
08:14:43> File number : 37
08:14:43> ----------
08:14:58> DUMP: Date of this level 8 dump: Thu Nov 10 08:14:51 1994
08:14:58> DUMP: Date of last level 3 dump: Wed Nov 9 03:04:43 1994

08:14:59> DUMP: Dumping /dev/rvp31 (/s21) to standard output
08:15:00> DUMP: mapping (Pass I) [regular files]
08:15:49> DUMP: mapping (Pass II) [directories]
08:15:56> DUMP: mapping (Pass II) [directories]
08:16:00> DUMP: estimated 370974 blocks (181.14MB)
08:16:01> DUMP: dumping (Pass III) [directories]
08:16:03> DUMP: dumping (Pass IV) [regular files]
08:21:18> DUMP: 45.58% done, finished in 0:05
08:26:17> DUMP: 94.47% done, finished in 0:00
08:26:41> DUMP: level 8 dump on Thu Nov 10 08:14:51 1994
08:26:41> DUMP: 371110 blocks (181.21MB)
08:26:42> DUMP: DUMP IS DONE
08:26:42> Backup command completed successfully.
08:26:46> ----------
08:26:46> Request Statistics:
08:26:46> Data written : 185580 KB
08:26:46> Elapsed time : 00:12:04
08:26:46> Status : Successful
08:26:46> Performance : 256 KB/sec
08:26:46> Peak rate : 333 KB/sec
08:26:47> Write Retries: 500
08:26:47> ----------
08:26:48> ----------
08:26:48> Request Identification (#43):
08:26:48> Requestor : root@auspex0
08:26:48> Id : vp4
08:26:48> Path : auspex0:/s4
08:26:48> Type : dump
08:26:48> File History : Maintained
08:26:49> Volume label : incr_7
08:26:49> File number : 38
08:26:49> ----------
08:27:04> DUMP: Date of this level 4 dump: Thu Nov 10 08:26:58 1994
08:27:04> DUMP: Date of last level 0 dump: Sun Nov 6 05:29:50 1994
08:27:04> DUMP: Dumping /dev/rvp4 (/s4) to standard output
08:27:06> DUMP: mapping (Pass I) [regular files]
08:28:50> DUMP: mapping (Pass II) [directories]
08:31:15> DUMP: mapping (Pass II) [directories]
08:32:03> DUMP: mapping (Pass II) [directories]
08:32:17> DUMP: estimated 216828 blocks (105.87MB)
08:32:23> DUMP: dumping (Pass III) [directories]
08:33:06> DUMP: dumping (Pass IV) [regular files]
08:37:21> DUMP: 75.10% done, finished in 0:01
08:39:09> DUMP: level 4 dump on Thu Nov 10 08:26:58 1994
08:39:09> DUMP: 214964 blocks (104.96MB)
08:39:10> DUMP: DUMP IS DONE
08:39:13> Backup command completed successfully.
08:39:18> ----------
08:39:18> Request Statistics:
08:39:18> Data written : 107520 KB
08:39:18> Elapsed time : 00:12:30
08:39:18> Status : Successful
08:39:18> Performance : 143 KB/sec
08:39:18> Peak rate : 333 KB/sec
08:39:18> Write Retries: 279
08:39:18> ----------
08:39:19> ----------
08:39:19> Request Identification (#44):
08:39:19> Requestor : root@auspex0
08:39:19> Id : vp5
08:39:19> Path : auspex0:/s5

```
08:39:19>  Type       : dump
08:39:19>  File History : Maintained
08:39:20>  Volume label : incr_7
08:39:20>  File number  : 39
08:39:20> ------------------------
08:39:35>  DUMP: Date of this level 4 dump: Thu Nov 10 08:39:29 1994
08:39:35>  DUMP: Date of last level 0 dump: Sun Nov  6 07:47:43 1994
08:39:36>  DUMP: Dumping /dev/rvp5 (/s5) to standard output
08:39:37>  DUMP: mapping (Pass I) [regular files]
08:41:26>  DUMP: mapping (Pass II) [directories]
08:42:43>  DUMP: mapping (Pass II) [directories]
08:43:15>  DUMP: estimated 222652 blocks (108.72MB)
08:43:23>  DUMP: dumping (Pass III) [directories]
08:44:01>  DUMP: dumping (Pass IV) [regular files]
08:48:23>  DUMP: 59.26% done, finished in 0:03
08:51:59>  DUMP: level 4 dump on Thu Nov 10 08:39:29 1994
08:51:59>  DUMP: 222424 blocks (108.61MB)
08:51:59>  DUMP: DUMP IS DONE
08:52:04> Backup command completed successfully.
08:52:08> ------------------------
08:52:08> Request Statistics:
08:52:08>  Data written : 111240 KB
08:52:08>  Elapsed time : 00:12:49
08:52:08>  Status       : Successful
08:52:08>  Performance  : 144 KB/sec
08:52:08>  Peak rate    : 315 KB/sec
08:52:08>  Write Retries: 174
08:52:08> ------------------------------------------------------
08:52:09> ------------------------------------------------------
08:52:09> Request Identification (#45):
08:52:09>  Requestor    : root@auspex0
08:52:09>  Id           : vp6
08:52:09>  Path         : auspex0:/s6
08:52:09>  Type         : dump
08:52:09>  File History : Maintained
08:52:10>  Volume label : incr_7
08:52:10>  File number  : 40
08:52:10> ------------------------
08:52:24>  DUMP: Date of this level 4 dump: Thu Nov 10 08:52:18 1994
08:52:24>  DUMP: Date of last level 0 dump: Sun Nov  6 09:54:49 1994
08:52:25>  DUMP: Dumping /dev/rvp6 (/s6) to standard output
08:52:26>  DUMP: mapping (Pass I) [regular files]
08:54:24>  DUMP: mapping (Pass II) [directories]
08:56:00>  DUMP: mapping (Pass II) [directories]
08:56:34>  DUMP: mapping (Pass II) [directories]
08:56:47>  DUMP: mapping (Pass II) [directories]
08:56:54>  DUMP: estimated 113114 blocks (55.23MB)
08:56:56>  DUMP: dumping (Pass III) [directories]
08:57:23>  DUMP: dumping (Pass IV) [regular files]
09:01:17>  DUMP: level 4 dump on Thu Nov 10 08:52:18 1994
09:01:17>  DUMP: 113174 blocks (55.26MB)
09:01:17>  DUMP: DUMP IS DONE
09:01:19> Backup command completed successfully.
09:01:24> ------------------------
09:01:24> Request Statistics:
09:01:24>  Data written : 56640 KB
09:01:24>  Elapsed time : 00:09:15
09:01:24>  Status       : Successful
09:01:24>  Performance  : 102 KB/sec
09:01:24>  Peak rate    : 315 KB/sec
09:01:25>  Write Retries: 135
```

```
09:01:25> ----------------------------------------------------
09:01:26> ----------------------------------------------------
09:01:26> Request Identification (#46):
09:01:26>  Requestor   : root@auspex0
09:01:26>  Id         : vp7
09:01:26>  Path       : auspex0:/s7
09:01:26>  Type       : dump
09:01:26>  File History : Maintained
09:01:26>  Volume label : incr_7
09:01:26>  File number  : 41
09:01:26> -------------------------
09:01:41>  DUMP: Date of this level 4 dump: Thu Nov 10 09:01:36 1994
09:01:41>  DUMP: Date of last level 0 dump: Sun Nov  6 11:19:07 1994
09:01:42>  DUMP: Dumping /dev/rvp7 (/s7) to standard output
09:01:42>  DUMP: mapping (Pass I) [regular files]
09:03:35>  DUMP: mapping (Pass II) [directories]
09:04:37>  DUMP: mapping (Pass II) [directories]
09:05:02>  DUMP: mapping (Pass II) [directories]
09:05:12>  DUMP: mapping (Pass II) [directories]
09:05:19>  DUMP: estimated 262016 blocks (127.94MB)
09:05:26>  DUMP: dumping (Pass III) [directories]
09:05:53>  DUMP: dumping (Pass IV) [regular files]
09:10:21>  DUMP: 54.07% done, finished in 0:04
09:13:52>  DUMP: level 4 dump on Thu Nov 10 09:01:36 1994
09:13:52>  DUMP: 261908 blocks (127.88MB)
09:13:52>  DUMP: DUMP IS DONE
09:13:55> Backup command completed successfully.
09:13:59> -------------------------
09:13:59> Request Statistics:
09:13:59>  Data written : 130980 KB
09:13:59>  Elapsed time : 00:12:33
09:13:59>  Status      : Successful
09:13:59>  Performance  : 173 KB/sec
09:13:59>  Peak rate    : 315 KB/sec
09:14:00>  Write Retries: 176
09:14:00> ----------------------------------------------------
09:14:01> ----------------------------------------------------
09:14:01> Request Identification (#47):
09:14:01>  Requestor   : root@auspex0
09:14:01>  Id         : vp8
09:14:01>  Path       : auspex0:/s8
09:14:01>  Type       : dump
09:14:01>  File History : Maintained
09:14:01>  Volume label : incr_7
09:14:01>  File number  : 42
09:14:01> -------------------------
09:14:17>  DUMP: Date of this level 4 dump: Thu Nov 10 09:14:11 1994
09:14:17>  DUMP: Date of last level 0 dump: Sun Nov  6 12:32:01 1994
09:14:17>  DUMP: Dumping /dev/rvp8 (/s8) to standard output
09:14:18>  DUMP: mapping (Pass I) [regular files]
09:16:09>  DUMP: mapping (Pass II) [directories]
09:18:07>  DUMP: mapping (Pass II) [directories]
09:18:45>  DUMP: mapping (Pass II) [directories]
09:19:02>  DUMP: estimated 51532 blocks (25.16MB)
09:19:12>  DUMP: dumping (Pass III) [directories]
09:19:29>  DUMP: dumping (Pass IV) [regular files]
09:21:38>  DUMP: level 4 dump on Thu Nov 10 09:14:11 1994
09:21:38>  DUMP: 49786 blocks (24.31MB)
09:21:40>  DUMP: DUMP IS DONE
09:21:44> Backup command completed successfully.
09:21:49> -------------------------
```

09:21:49> Request Statistics:
09:21:49> Data written : 24900 KB
09:21:49> Elapsed time : 00:07:48
09:21:49> Status : Successful
09:21:49> Performance : 53 KB/sec
09:21:49> Peak rate : 315 KB/sec
09:21:50> Write Retries: 38
09:21:50> ----------
09:21:52> ----------
09:21:52> Request Identification (#48):
09:21:52> Requestor : root@auspex0
09:21:52> Id : vp9
09:21:52> Path : auspex0:/s9
09:21:52> Type : dump
09:21:52> File History : Maintained
09:21:53> Volume label : incr_7
09:21:53> File number : 43
09:21:53> ----------
09:22:10> DUMP: Date of this level 4 dump: Thu Nov 10 09:22:04 1994
09:22:10> DUMP: Date of last level 0 dump: Sun Nov 6 15:04:58 1994
09:22:11> DUMP: Dumping /dev/rvp9 (/s9) to standard output
09:22:13> DUMP: mapping (Pass I) [regular files]
09:24:01> DUMP: mapping (Pass II) [directories]
09:24:27> DUMP: mapping (Pass II) [directories]
09:24:38> DUMP: mapping (Pass II) [directories]
09:24:43> DUMP: mapping (Pass II) [directories]
09:24:48> DUMP: estimated 198338 blocks (96.84MB)
09:24:51> DUMP: dumping (Pass III) [directories]
09:25:06> DUMP: dumping (Pass IV) [regular files]
09:29:55> DUMP: 78.26% done, finished in 0:01
09:31:16> DUMP: level 4 dump on Thu Nov 10 09:22:04 1994
09:31:16> DUMP: 196698 blocks (96.04MB)
09:31:17> DUMP: DUMP IS DONE
09:31:18> Backup command completed successfully.
09:31:24> ----------
09:31:24> Request Statistics:
09:31:24> Data written : 98400 KB
09:31:24> Elapsed time : 00:09:32
09:31:24> Status : Successful
09:31:24> Performance : 172 KB/sec
09:31:24> Peak rate : 315 KB/sec
09:31:25> Write Retries: 123
09:31:25> ----------
09:31:25> ==========
09:31:25> Close Volume
09:31:25> Writing a trailer to end of data
09:33:07> Close Media Server
09:33:07> Start merges

From: vant [vanthof@hestia]
Sent: Thursday, November 10, 1994 3:50 PM
To: 'sysadmin@hestia'
Cc: 'Dave Van't Hof'; 'Thomas Laidig'; 'Mark Hofmann'; 'Tim B. Robinson'
Subject: rexec problems?

Hi,
I believe I've stumbled across some difference between rexec and rsh and the result is that rexec dies. Here's the command line:

rexec hestia "(cd /n/hestia/s3/dracjobs/drc; /u/chip/tools/bin/vlsimm -I -t -n -f local_f.imm1 -p . -p ./immlayouts -v /n/rama/s4/vanthof/compass/mobi/euterpe/vlsi.boo -o drc=mobieclium.err1 mobieclium >& run_imm1.hestia.log1)"

and I get this:

sh: run_imm1.hestia.log1: bad number

When I change the rexec to rsh, it works fine. I may have a typo in the above line, but I can't seem to find it.

Any help would be greatly appreciated.

Thanks,
Dave

--
Dave Van't Hof vanthof@microunity.com MicroUnity Systems Engineering, Inc.
"What rolls down stairs, alone or in pairs, rolls over the neighbor's dog?
What's great for a snack and fits on your back? It's log, log, log!"
LOG from BLAMMO! (tm) All kids love Log! #incluce <std_disclaim.h>

From: Eric Murray [ericm@MicroUnity.com]

Sent: Thursday, November 10, 1994 4:29 PM

To: 'vant'

Cc: 'sysadmin@MicroUnity.com'; 'vanthof@MicroUnity.com'; 'tom@MicroUnity.com'; 'hopper@MicroUnity.com'; 'tbr@MicroUnity.com'

Subject: Re: rexec problems?

vant wrote:
>
>
> Hi,
> I believe I've stumbled across some difference between rexec and rsh and
> the result is that rexec dies. Here's the command line:
>
> rexec hestia "(cd /n/hestia/s3/dracjobs/drc; /u/chip/tools/bin/vlsimm -I -t -n -f local_f.imm1 -p . -p ./immlayouts -
> v /n/rama/s4/vanthof/compass/mobi/euterpe/vlsi.boo -o drc=mobieclium.err1 mobieclium >& run_imm1.hestia.log1)"
>
> and I get this:
>
> sh: run_imm1.hestia.log1: bad number
>
> When I change the rexec to rsh, it works fine. I may have a typo in the above
> line, but I can't seem to find it.

i can't duplicate this. i finally threw caution to the wind
and ran this same command as you, and it worked fine.

the only difference was that i ran it from dockmaster
instead of hestia.

--
ericm ericm@microunity.com

From: Graham Y. Mostyn [graham@thalia]
Sent: Thursday, November 10, 1994 8:02 PM
To: 'woody@thalia'; 'tbr@thalia'; 'ras@thalia'; 'yves@thalia'; 'dane@thalia'; 'arya@thalia'; 'noel@thalia'; 'bill@thalia'; 'rich@thalia'; 'tbe@thalia'
Cc: 'hestia@thalia'; 'graham@thalia'
Subject: Layout review

Now that the main board layout is close to completion, we would like all of the circuit designers to check the final captured schematics and this interim layout, in particular tracing out the sections that they own.

We're therefore circulating tomorrow (Friday) schematics and plots to the following people, and would appreciate it if you could report to Arya at or before the 3PM Monday netlist meeting of discrepancies in any of the three databases:

SECTION		DESIGNER
DRAM, Euterpe, smart card		woody, tbr
Upstream transmitter		ras
Ch3/4 transmitter	ras	
QPSK RX		ras
Audio	yves	
Phone	yves	
Video	dane	
RF receivers		arya
Power planes		noel, bill, graham
Power supplies		noel
IR	noel	
VCOs, SAW osc.		rich
Mechanical compatibility		tbe

Thanks for your help - the netlist meeting is held in the boxers' conference room.

Graham.

From: tbr
Sent: Thursday, November 10, 1994 9:30 PM
To: 'hopper'
Subject: forwarded message from Don Rozenberg
Follow Up Flag: Follow up
Flag Status: Red

------- Start of forwarded message -------
Status: RO
X-VM-v5-Data: ([nil nil nil nil nil nil nil nil]
["7688" "Wed" "9" "November" "94" "8:58:26" "PST" "Don Rozenberg" "rozen@mercury " nil "188" "SUNFLASH! (SMCC Intros hyperSPARC SPARCstation) (fwd)" "^From:" nil nil "11"])
Return-Path: <rozen@mercury>
Received: from mercury.microunity.com by gaea.microunity.com (4.1/muse1.3)
id AA14357; Wed, 9 Nov 94 08:56:53 PST
Received: from localhost by mercury.microunity.com (8.6.4/muse-sw.2)
id IAA04263; Wed, 9 Nov 1994 08:58:26 -0800
Message-Id: <199411091658.IAA04263@mercury.microunity.com>
X-Mailer: ELM [version 2.3 PL11]
From: rozen@mercury (Don Rozenberg)
To: tbr@mercury (Tim Robinson), admin@mercury
Subject: SUNFLASH! (SMCC Intros hyperSPARC SPARCstation) (fwd)
Date: Wed, 9 Nov 94 8:58:26 PST

Hi,

This is came from Gavin. It is the first piece of information about the Sun Announcement. I am sure that there will be more.

Don

Forwarded message:
> From gavin@acclaim.com Wed Nov 9 08:07:57 1994
> Date: Wed, 9 Nov 94 07:24:11 PST
> Message-Id: <9411091524.AA09782@acclaim.com>
> X-Sender: gavin@aspen
> X-Mailer: Windows Eudora Version 2.0.3
> Mime-Version: 1.0
> Content-Type: text/plain; charset="us-ascii"
> To: rozen@MicroUnity.com
> From: uusr945!uupsi2!Corp.Sun.COM!Edgar.Vaughan@rambone.psi.net (Edgar Vaughan) (by way of gavin@acclaim.com (Gavin Thames))
> Subject: SUNFLASH! (SMCC Intros hyperSPARC SPARCstation)
> Cc: ericm@MicroUnity.com
>
> Hello Don,
>
> Here is the marketing hype that has been distributed at this time.
> I have not received upgrade or detailed pricing information.
> I should receive it sometime today. I'll keep you posted.
>
> Thanks,
>
> Gavin
> Acclaim Technology Inc.

>
>
>
>
>
>
> FYI.....
>
>
> _/_/_/_/ _/_/_/ _/
> _/   _/ _/_/_/_/ _/   Jim Chabrier, (415) 336-0317
> _/   _/ _/   _/ _/   Ed Vaughan, (415) 336-2238
> _/_/_/_/ _/   _/ _/_/_/
> _/   _/ _/   _/ _/
> _/   _/ _/_/_/ _/_/_/   MS UPAL01-451
>   2550 Garcia Avenue
>   Mountain View, CA 94043
> M I C R O S Y S T E M S Fax: (415) 336-0822
>
> Jim Chabrier -- Jim.Chabrier@Corp.Sun.COM
> Ed Vaughan -- edgar.vaughan@Corp.Sun.COM
>
> TERRITORY COVERAGE:
>
> Jim Chabrier -- Sunnyvale, Mountain View, Palo Alto, Belmont, San Carlos,
> Menlo Park, Redwood City, Burlingame, Brisbane, South
> San Francisco.
>
> TBH -- Santa Clara, Fremont, Milpitas, Cupertino.
>
> Ed Vaughan -- San Jose, Campbell, Los Gatos, Saratoga, Los Altos, Scotts
> Valley, Santa Cruz County, and Monterey County.
>
>
> -+This message has been approved for distribution to this alias+-
>
>
> The following announcement was made earlier today, Nov. 8, 1994
> by SMCC. If you have any questions regarding this announcement,
> please contact Chris Scheufele of SMCC Product Marketing at
> (415) 336-1299. Please direct all press inquiries to Gayle
> Jennings of SMCC Public Relations at (415) 336-0787.
>
>
> SMCC INTRODUCES HYPERSPARC SPARCstation
>
> New SPARCstation 20 Model Optimized for Floating Point
> and Cache MemoryPerformance
>
> MOUNTAIN VIEW, Calif., November 8, 1994 - Sun Microsystems
> Computer Company (SMCC) today continued to enhance the industry's most
> successful high-end workstation family, the SPARCstation(TM) 20, by
> introducing a new model, the SPARCstation 20 Model HS11. The new
> workstation is aimed at compute-intensive technical applications where
> the system's floating-point performance and cache memory architecture
> are an advantage. Among these applications are simulation, electronic
> design, modeling and analysis.
>
> SMCC's SPARCstation 20 Model HS11 uses the new 100 MHz
> hyperSPARC(TM) processor from ROSS Technology, Inc. It is supported by
> the Solaris(TM) 2.4 software environment and by a new release of the
> Solaris 1 software environment, called Solaris 1.1.2. The new

> SPARCstation 20 Model HS11 joins SMCC's highly successful SPARCstation
> 20 Model 61 at the high end of SMCC's SPARCstation 20 family. The new
> SPARCstation 20 Model HS11 is rated at 104.5 SPECint92 and 127.6
> SPECfp92.
>
> "At Sun, we stress the use of open technologies. Our open
> business model allows us to take the best technology available at a
> given time and apply it to the needs of our customers. SPARC(R)
> technology is an example," said Jay Puri, vice president of product
> marketing at SMCC. "By using hyperSPARC in the new Model HS11, we have
> responded to those customers whose applications can take advantage of
> the floating-point performance offered by the ROSS processor and
> delivered a workstation to match their needs."
>
> The new SPARCstation 20 model HS11 is built on the familiar
> "pizza box" package of all SPARCstation 20 workstations, providing the
> kind of expandability customers have come to expect: up to 512
> megabytes of main memory, up to 2 gigabytes of internal mass storage,
> and four SBus slots. The workstation also includes a CD-ROM drive,
> 3.5-inch floppy disk drive and high-quality audio. The SPARCstation 20
> Model HS11 is binary compatible with existing applications.
>
> Further, SPARCstation 10 and SPARCstation 20 workstation and
> server customers whose applications can benefit from the hyperSPARC
> architectural features can upgrade their systems with 100 MHz
> hyperSPARC modules.
>
> "The SPARCstation 20 family is the highest volume, most widely
> supported high-end workstation line in the industry," Puri said, "With
> the Model HS11, the SPARCstation 20 family continues to be the industry
> value leader."
>
> Strong Software Environment Support
>
> Operating system support comes from the Solaris 2.4 and from
> the enhanced Solaris 1.1.2 software environments. With the Solaris
> 1.1.2 release, Sun continues its focus on quality operating
> environments. Additionally, the installation time of Solaris 1.1.2 has
> been reduced by as much as 25 percent. Full compatibility is maintained
> with previous Solaris 1 releases. Further, Solaris 1.1.2 supports all
> SMCC SPARC systems supported by previous releases of Solaris 1, in
> addition to the new hyperSPARC upgrade modules.
>
> Pricing and Availability
>
> The SPARCstation 20 Model HS11 is available in a base
> configuration with 32 megabytes of memory, 1 gigabyte of mass storage,
> and a 17-inch TurboGX(TM) color monitor, for $18, 695. It will be
> available December, 1994.
>
> Solaris 1.1.2 is available now for the United States. A
> European (French, German, Italian and Swedish) version will be
> available in December. Versions for Japan, Korea, PRC and Taiwan will
> be available in January.
>
> Sun Microsystems Computer Company (SMCC), the world's top
> supplier of open network computing solutions, is an operating company
> of Sun Microsystems, Inc. Built on Sun's legacy of "The Network is the
> Computer(TM)," SMCC's SPARC(R)/Solaris(TM) workstation and server
> family leads the UNIX(R) market. The company has its headquarters in
> Mountain View, Calif.

>
> # # #
>
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> exclusively to ROSS Technology, Inc. Products bearing SPARC trademarks
> are based on an architecture developed by Sun Microsystems, Inc. ROSS
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> exclusively licensed through X/Open Company, Ltd. All other product or
> service names mentioned herein are trademarks of their respective
> owners.
>
> Press announcements and other information about Sun Microsystems are
> available on the Internet via the World Wide Web. Type
> http://www.sun.com, using the Mosaic tool.
>
>
>
>
>
> ----- End Included Message -----
>
>
>

- --
Don Rozenberg
MicroUnity Systems Engineering, Inc.
255 Caspian Drive, Sunnyvale, CA 94089
(408) 734-8100 FAX (408) 734-8136
------- End of forwarded message -------

From: tbr
Sent: Thursday, November 10, 1994 10:28 PM
To: 'Wayne Freitas'
Subject: swag dates for Euterpe and Calliope
Follow Up Flag: Follow up
Flag Status: Red

Wayne Freitas wrote (on Wed Nov 9):

> Tim I've been updating the bring-up schedule and could really use a better guess than mine of when Calliope and Euterpe might be available. Would you care to provide a swag?

Calliope is entirely in the hands of the Gods (ie Al!). As for Euterpe, we have the baseplate fractured, and as of Wednesday we hit a roadblock in getting it to route. My best guess is we won't be ready to cut masks for at least 4 weeks. Recon 4 weeks to get the last mask back after that. If the process is fully up within the next month, we might expect them to process wafers as the masks come in. So first chips could be out a week or so after that. That would be 9 weeks from today.

Tim

From: tbe@MicroUnity.com
Sent: Friday, November 11, 1994 2:19 AM
To: 'Tim B. Robinson'
Cc: 'noel@MicroUnity.com'; 'pmayer@MicroUnity.com'; 'jt@MicroUnity.com'
Subject: Re: pcb status

Tim Robinson wrote:

>
>There was a rather alarming message earlier from yves about taking the
>SDRAMs off the ground plane, which I assume was something also
>discussed at this meeting. I have a major problem with that, since it
>would mean the return path for the transient currents would have a huge
>loop back to the PSU and we would have serious ground bounce problems.
>I have no problem splitting the euterpe and calliope planes if we can
>find room to do it, but separating euterpe and the DRAMs with 1ns edge
>rate TTL signals between them would be a big disaster. I agree it
>seems we still have a way to go.
>
>Tim

Noel and I had to leave the meeting after the mechanical discussion--I
didn't hear of this while there. It does not sound right, I agree.

-Tom

Tom Eich | tbe@microunity.com
MicroUnity Systems Engineering, Inc.|
255 Caspian Dr. Sunnyvale, CA 94089 |
(408)734-8100, (408)734-8136 fax |

From: tbr
Sent: Friday, November 11, 1994 2:23 AM
To: 'tbe@MicroUnity.com'
Cc: 'jt'; 'noel'; 'pmayer'
Subject: pcb status
Follow Up Flag: Follow up
Flag Status: Red

tbe@MicroUnity.com wrote (on Fri Nov 11):

> Pattie and I spoke earlier today about the schedule to complete the first pcb. We are concerned that the Monday deadline may not be met no matter how many hours she (or I) put in this weekend, due to the many features yet to be added.
>
> Tim may not be aware that when we had the meeting yesterday with the EMI test lab President, the chassis to pcb grounding and individual analog circuit shield grounding was discussed extensively. There seemed not to be any clear, common understanding of the problem prior to this meeting, and we ended up picking this guy's brains to determine a strategy, driven by Wayne. (Not sure that this person is a bad person to turn to for such advice, but the advice greatly increased the scope of pcb work from what I expected [chassis ground to analog grounds at many points. Btw, I expect to hear from Richard Mueller next week on same subject--blinders on for now.). We took the decision to interpose partial chassis ground planes beneath the shielded analog circuit elements and tie them to the shield wall traces with many vias. This with the local supply lines interspersed.
>
> In addition, for lighting and ESD testing, we need to make certain we have adequate chassis ground pass through to avoid dumping spikes into the pcb ground plane. Other things not yet addressed as far as I know are DC bussing from the RO pins (Noel update if defined), and numerous other details. Bottom line is Pattie and I are concerned about meeting the monday deadline and want to keep you informed of the latest developments. Let's discuss.

There was a rather alarming message earlier from yves about taking the SDRAMs off the ground plane, which I assume was something also discussed at this meeting. I have a major problem with that, since it would mean the return path for the transient currents would have a huge loop back to the PSU and we would have serious ground bounce problems. I have no problem splitting the euterpe and calliope planes if we can find room to do it, but separating euterpe and the DRAMs with 1ns edge rate TTL signals between them would be a big disaster. I agree it seems we still have a way to go.

Tim

From: vant [vanthof@hestia]
Sent: Friday, November 11, 1994 8:30 AM
To: 'Tom Vo'
Cc: 'Dave Van't Hof'; 'Mark Hofmann'; 'Tim B. Robinson'; 'Lisa Robinson'; 'Geert Rosseel'
Subject: euterpe lvs finished

Hi Tom,
The euterpe lvs finished. The resulst are in

/u/vanthof/compass/mobi/euterpe/tapeout/euterpe.compare

There are about 300 devices unmatched. A quick glance through the file shows some problems with CELOW_0, CEHIGH_0, VRR34_0 -> VRR35_0, VRR54_0 -> VRR55_0, some pll signals, etc. There are a few gates which have a schematic signal called XIOBYTE1-X2P_1-X4P_1-X1P_1-LOGIC0_0P and the layout is tied to VDDI.

In addition to the mismatches, there are 96 extra schematic devices.

The output file is only 1.3MB. If you need any help, please let me know.

Thanks,
Dave
--
Dave Van't Hof vanthof@microunity.com MicroUnity Systems Engineering, Inc.
"What rolls down stairs, alone or in pairs, rolls over the neighbor's dog?

What's great for a snack and fits on your back? It's log, log, log!"
LOG from BLAMMO! (tm) All kids love Log! #incluce <std_disclaim.h>

From: Alan Corry [agc@aphrodite]
Sent: Friday, November 11, 1994 9:46 AM
To: 'abbott (Curtis Abbott)'
Cc: 'Bob Sutherland'
Subject: Re: a couple of questions

>
> we've just had a big review meeting on QAM, Calliope, etc., to bring
> the new DSP people up to speed. a couple questions came up for you:
>
> - the original digital rotator was controllable in pi/128 steps. is
> that still the case with the IQ balance fix?
>
Yes, still the same. The change here was more to do with whether you can bypass the rotator or not (you used to be able to, now you can't). Though you can turnoff the IQ balancer.

> - does the IQ balance circuitry maintain 10-bit arithmetic throughout?
>
Not an easy question to answer since there are multiple precisions used.

The multiplier used is an 8x10 parallel unit. The input data from the DACs is 8-bit that is rotated (using a 10-bit SIN/COS value). The multiplier is truncating to a 10-bit result. The LMS coefficients are accumulated to 20-bit accuracy and the most significant 8-bits are used in the adaption algorithm.
The eventual result is presented at 10-bits.

I believe ras has simulated the adaptive filter using these quantizations to check for precision effects. brian began work on verifying the verilog which would have included checking to ensure that there were no unexpected quantization problems with the real hardware but was pulled off to work on euterpe.

From: Eric Murray [ericm@MicroUnity.com]
Sent: Friday, November 11, 1994 10:01 AM
To: 'sysadm@MicroUnity.com'
Subject: disk usage report

For directories over 100 megs:
user's info:

brianl	1412
hopper	1229
chip	1028
dickson	907
fwo	889
craig	883
geert	847
jsw	684
tbr	661
gmo	577
rozen	575
vanthof	559
brendan	479
vijay	477
sandeep	472
h	464
rocky	449
qua	436
brian	417
wampler	370
tbe	353
ken	338
khp	291
agc	282
fur	281
doi	272
tom	268
hchu	258
hessam	239
ras	239
veena	225
fung	219
iimura	211
peter	206
bill	205
cox	201
jeffm	197
rich	195
haim	190
lisar	189
mws	185
al	181
billz	174
vandyke	173
ericm	172
solo	169
bpw	156
gregg	152
guarino	151

lisa 146
randy 142
wingard 140
karzes 139
woody 138
chuck 137
jeff 135
dane 132
hayes 132
octtools 130
albers 128
tomho 127
kgk 123
warren 123
mikew 119
fambro 119
yves 116
ong 112
paulb 103
larryk 102

packages info:
chip-euterpe-buil 2029
calliope 1579
news 1335
euterpe-verify 1011
chip-archive 869
orchis_snap 811
chip-proteus 793
calliope-disk2 730
soft-src 639
cadence 636
losf-build 614
ptolemy 614
archives 598
sun 568
cadence.hp 552
calliope1-fractur 487
chip-calliope 484
soft 477
chip-terpsichore 475
sgi 377
x11r5_ken_p26 329
castor-retry 325
bosf-build 323
chip-archive-terp 318
calliope-overflow 297
mips-4.52 282
osf 260
chip-archive-mnem 259
bigtmp 239
X11r4 228
bsd 222
cadence_doc 221
synopsys 216
cadence_doc_9402 215
budtool_db 190
budtool 181
Motif 177

mechanica	164
sgi5	152
ucberl	147
vlsi.v8r4_2	145
ikos	144
proe_tmp	138
ftp	134
khoros	134
proe_13.0	134
calliope-verify	132
iimura.bc	128
gnu	125
bsd43	115
frame-4.0.3	114
svr4	114
X11r5	111
lib	106
iimura-cross	106
chip-mdunit	105
motif1.2	101

machine	user megs	package megs	total megs	max capacity	% used
auspex	19878	18775	38653	59499	64%
rama	3676	2336	6012	9428	63%
rhea	215	1599	1815	2484	73%
gaea	5	1718	1723	1780	96%
cronus	626	2217	2843	6208	45%

auspex rama rhea gaea cronus:

24400	26645	51046	79399	64%

From: Jay Tomlinson [woody@luckboy]
Sent: Friday, November 11, 1994 10:39 AM
To: 'Lisa Robinson'
Cc: 'tbr@luckboy'
Subject: hermeseasy

Lisar,
I think the problem is that you are enabling the channel in hc0. This leaves iorate0 still disabled.
Something else might also incorrect since iodinA0 goes to zero slightly after din0 starts changing, but iodinB0 (iobyte0 to iorate) is always X. I don't yet know what is causing this behavior, I need to go learn more about iorate.

Jay

Lisa Robinson wrote (on Fri Nov 11):

> There is a smaller dump in
> /n/rhodan/s3/euterpe/verilog/bsrc/hermeseasy_V.*
>
> Lisa R.

From: abbott
Sent: Friday, November 11, 1994 11:12 AM
To: 'puri'
Subject: forwarded message from Alan Corry

Manoj - concerning Alan's last paragraph, what was the precision of your simulations?

- Curtis
------- Start of forwarded message -------
From: agc@aphrodite (Alan Corry)
To: abbott (Curtis Abbott)
Cc: ras@aphrodite (Bob Sutherland)
Subject: Re: a couple of questions
Date: Fri, 11 Nov 94 7:46:02 PST

>
> we've just had a big review meeting on QAM, Calliope, etc., to bring
> the new DSP people up to speed. a couple questions came up for you:
>
> - the original digital rotator was controllable in pi/128 steps. is
> that still the case with the IQ balance fix?
>
Yes, still the same. The change here was more to do with whether you can bypass the rotator or not (you used to be able to, now you can't). Though you can turnoff the IQ balancer.

> - does the IQ balance circuitry maintain 10-bit arithmetic throughout?
>
Not an easy question to answer since there are multiple precisions used.

The multiplier used is an 8x10 parallel unit. The input data from the DACs is 8-bit that is rotated (using a 10-bit SIN/COS value). The multiplier is truncating to a 10-bit result. The LMS coefficients are accumulated to 20-bit accuracy and the most significant 8-bits are used in the adaption algorithm.
The eventual result is presented at 10-bits.

I believe ras has simulated the adaptive filter using these quantizations to check for precision effects. brian began work on verifying the verilog which would have included checking to ensure that there were no unexpected quantization problems with the real hardware but was pulled off to work on euterpe.

------- End of forwarded message -------

From: Kurt Wampler [wampler@thoas]
Sent: Friday, November 11, 1994 11:18 AM
To: 'geert@ambiorix'
Subject: Re: GARDS

> Hi Kurt
>
> All the data lives in /n/ghidra/s3/geert/euterpe/verilog/bsrc .
>
> I did not change anthing in the Makefile.tst, but I added a set of
>comment lines in the routing strategy section. Re-arrangning the
order of this section should give you what you want.
>
> Geert

OK - I got a snapshot copy of all the files. I'll keep you informed of any progress.

- Kurt

From: Jean-Yves Michel [yves@thalia]
Sent: Friday, November 11, 1994 11:34 AM
To: 'tbr@aphrodite'
Cc: 'hestia@thalia'
Subject: Re: SDRAM power

Tim Robinson wrote:
>
> Jean-Yves Michel wrote (on Thu Nov 10):
>
> It was decided during an earlier meeting that the SDRAM will be
powered
> directly from the DC/DC converter, not using the power planes, in
order
> to reduce the supply noise.
>
> Please clarify when that was decided. It's not acceptable to have the
> SDRAM off the plane. It absolutely has to have good decoupling. No
> one puts DRAM on anything other than solid ground and power planes.
>
> Because of possible radiated noise too
> (the distance from SDRAM to DC/DC is a 500MHz 1/4 wave), we are
> planning to use the INT 1 layer (in-between the ground plane and the
> component layer). The power bus will be made of 12 94 mils wide
lines,
> alternating power and ground return, 6 mils apart. There will be 2
ground
> shields on both sides and a ground plane on the component side.
>
> Do you agree with this scheme?
>
> Absolutely not.

OK with me for the power planes.
What about using the 2 INT layers to make special power planes for the SDRAM's?

But before going further, I think we need to re-visit the amount of noise the SDRAM will inject into the power delivered to Euterpe and Calliope using the L-shape power plane layout. I unfortunately don't have all the data for that.

Could you give me a rough estimate of the supply current characteristic for the SDRAM being accessed.

For Euterpe and Calliope, we have been using 2A current spikes at 1.2GHz, 300ps wide. Is it OK?

> Following advices from our EMI/FCC consultant, do we have enough
> reservoir capacitances around the SDRAM's to guarantee an acceptable
> ripple.
>
> What is the acceptable ripple?
>
I will re-calculate the acceptable ripple for analog Calliope. I takes into account the noise frequency (100MHZ + odd harmonics from SDRAM), the amount of decoupling on the digital and the analog side and the series impedance of the L-shape power plane.

Jean-Yves

From: Jay Tomlinson [woody@luckboy]
Sent: Friday, November 11, 1994 12:13 PM
To: 'Lisa Robinson'
Cc: 'tbr@luckboy'
Subject: hermeseasy

Lisar,
The problem is that clkin0_N and din0_N are not driven.
Jay

Lisa Robinson wrote (on Fri Nov 11):

> There is a smaller dump in
> /n/rhodan/s3/euterpe/verilog/bsrc/hermeseasy_V.*
>
> Lisa R.

From: Jean-Yves Michel [yves@thalia]
Sent: Friday, November 11, 1994 12:20 PM
To: 'tbr@thalia'
Subject: Re: SDRAM power

----- Begin Included Message -----

>From yves Fri Nov 11 09:33:40 1994
Date: Fri, 11 Nov 1994 09:33:31 -0800
From: yves (Jean-Yves Michel)
To: tbr@aphrodite
Subject: Re: SDRAM power
Cc: hestia
Content-Length: 1969

Tim Robinson wrote:
>
> Jean-Yves Michel wrote (on Thu Nov 10):
>
> It was decided during an earlier meeting that the SDRAM will be powered
> directly from the DC/DC converter, not using the power planes, in order
> to reduce the supply noise.
>
> Please clarify when that was decided. It's not acceptable to have the
> SDRAM off the plane. It absolutely has to have good decoupling. No
> one puts DRAM on anything other than solid ground and power planes.
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> (the distance from SDRAM to DC/DC is a 500MHz 1/4 wave), we are
> planning to use the INT 1 layer (in-between the ground plane and the
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> alternating power and ground return, 6 mils apart. There will be 2 ground
> shields on both sides and a ground plane on the component side.
>
> Do you agree with this scheme?
>
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the SDRAM's?

But before going further, I think we need to re-visit the amount
of noise the SDRAM will inject into the power delivered to Euterpe and Calliope
using the L-shape power plane layout. I unfortunately don't have all
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>
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into account the noise frequency (100MHZ + odd harmonics from SDRAM), the
amount of decoupling on the digital and the analog side and the series
impedance of the L-shape power plane.

Jean-Yves

----- End Included Message -----

From: lisa
Sent: Friday, November 11, 1994 12:26 PM
To: 'software-checkins-dist'
Subject: gnu-tools/sim/terp memory.h memory.c

```
Update of /p/cvsroot/gnu-tools/sim/terp
In directory calliope:/N/auspex/root/s6/lisa/src/gnu-tools/sim/terp

Modified Files:
      memory.h memory.c
Log Message:

Removed move-engine code.
```

From: Bruce Bateman [stick@kephalos]
Sent: Friday, November 11, 1994 1:13 PM
To: 'euterpe@kephalos'
Subject: resistor code change from 5 to 6

I now understand that it has been decided to change the resistor code on euterpe from a value of 5 to 6. Although I haven't seen any discussion of this decision, I assume it is to help meet the speed targets. However, I should point out that the custom blocks, and particularly the cache were designed at resistor code = 5 and were not simulated at higher values. While I don't have particular concerns regarding functionality, I should point out that at least in the cache, power bus wiring was extremely tight and that the currents used for sizing the busses for IR drops and more importantly for electro-migration were based upon a resistor code of 5.
Increasing the code to 6 will likely cause some power busses to exceed their EM limits by the percentage power increase (20%?).

BB

From: Tom Laidig [tom@clio]
Sent: Friday, November 11, 1994 1:18 PM
To: 'Bruce Bateman'
Cc: 'euterpe@kephalos'
Subject: Re: resistor code change from 5 to 6

Bruce Bateman writes:

> I now understand that it has been decided to change the resistor code
> on euterpe from a value of 5 to 6. Although I haven't seen any
> discussion of this decision, I assume it is to help meet the speed
> targets. However, I should point out that the custom blocks, and
> particularly the cache were designed at resistor code = 5 and were not
> simulated at higher values. While I don't have particular concerns
> regarding functionality, I should point out that at least in the cache,
> power bus wiring was extremely tight and that the currents used for
> sizing the busses for IR drops and more importantly for
> electro-migration were based upon a resistor code of 5.
> Increasing the code to 6 will likely cause some power busses to exceed
> their EM limits by the percentage power increase (20%?).

I don't think there's any plan to change the resistor code for the caches or any other custom block. The problem is that the logic doesn't fit in the sofa, and bumping the power level up should help reduce gate size.

It is a defect of our current methodology that ged2spice has a resistor code built in, and that much of our analysis (both manual and
automated) is based on a value hard-coded into a program. This really should be changed.

--
Tom L

From: Geert Rosseel [geert@ambiorix]
Sent: Friday, November 11, 1994 1:40 PM
To: 'hardheads@ambiorix'; 'hestia@ambiorix'
Subject: IMMINENT DECISION : Euterpe SOFA Power

Hi,

In order to make the euterpe logic fit on the 10x10 die, we have to increase the power of the SOFA area with 20%.
This will give all our gates a higher drive capability and therefore we can use smaller gates for the same drive.

We are currently rebuilding the library and after that, we'll run a set of experiments. If the results are good, this will become a **FINAL** decision. We'll know the results in about a week.

Geert

From: Rich McCauley [rich@pegasus]
Sent: Friday, November 11, 1994 2:25 PM
To: 'geert@ambiorix'
Cc: 'hardheads@pegasus'
Subject: Re: IMMINENT DECISION : Euterpe SOFA Power

This seems to be a reasonable course to follow for the main sofa. However, I would strongly prefer to remain at rcd=5 for the gardswarts (those that already exist and ones in the future) since they are very small anyway and having the extra margin is of great benefit. What's needed is of course a set of timing files for rcd=5 and rcd=6 or at the very least a multiplier that could be applied to timing numbers (ignoring for the moment that there may not be a universal fudge factor). In principal it seems reasonable to have this available since how do we cover the situation of having different chips potentially at two different rcd values?

rich

> From geert@ambiorix Fri Nov 11 11:40:28 1994
> Date: Fri, 11 Nov 1994 11:40:12 -0800
> From: geert@ambiorix (Geert Rosseel)
> To: hardheads@ambiorix, hestia@ambiorix
> Subject: IMMINENT DECISION : Euterpe SOFA Power
> Content-Length: 506
>
>
>
>
>
>
> Hi,
>
>
> In order to make the euterpe logic fit on the 10x10 die, we have to
> increase the power of the SOFA area with 20%.
> This will give all our gates a higher drive capability and therefore
> we can use smaller gates for the same drive.
>
> We are currently rebuilding the library and after that, we'll run a
> set of experiments. If the results are good, this will become a FINAL
> decision. We'll know the results in about a week.
>
>
> Geert
>
>
>
>
>

From: Tim B. Robinson [tbr@aphrodite]
Sent: Friday, November 11, 1994 2:40 PM
To: 'euterpe@aphrodite'
Subject: forwarded message from tbr

One or two people seem not to have seen this for some reason though it was originally posted to Euterpe on Nov 6.

------- Start of forwarded message -------
To: euterpe
Subject: DECISION: event daemon

The following is a description of what is being implemented for the Event Daemon register.

A fixed Hermes sequence ID of 7 will be used for blocking reads. This sequence ID will not be available for normal operations, but multiple blocking reads to different devices on the same ring can be outstanding simultaneously, each with sequence ID 7, distinguished by the module address. Thus up to 7 normal operations and 4 blocking reads can be outstanding on each channel simultaneously. The collision detection which prevents multiple outstanding transactions to the same address in the same device will not apply to blocking reads. This is necessary because the conflict check is only approximate, looking at 6 low order address bits, and without this exclusion, normal operations could be held off pending a blocking read return.

Stores to the Event Daemon register go via NB, so back to back stores from different threads to event registers in multiple devices is supported. The Event Daemon register is decoded from the "slow peripheral" queue, and communicates directly with the appropriate Hermes channel. It is thus possible for an Event Daemon store to be processed ahead of a normal load or store previously issued to the same Hermes channel.

Hardware keeps track of pending blocking reads so duplicates can be suppressed. This deals with the problem of multiple blocking reads initiated by different threads after multiple interrupts to different threads have been returned together. Software therefore does not have to provide independent synchronization to ensure only one blocking read is posted. If an interrupt is permanently masked off in the Euterpe event register and there is a possibility that for some reason this interrupt causes the blocking read to return, a deadlock can be avoided by having a watchdog routine periodically issue another blocking read.

Software is still responsible for posting at least one blocking read for each interrupt received. ie there is no automatic hardware rescheduling of blocking reads. There is a possibility of duplicate events being signaled if another blocking read is issued by another thread before bits have been cleared in the peripheral device event register. This can be mitigated by always clearing the peripheral device event register before the corresponding bits in the Euterpe event register. However, because of possible delays in processing the store over the Hermes channel, there may still be a race here.
If so, software will have to be able to handle it.

This implementation does not directly address the problem of a low priority interrupt return blocking a high priority interrupt up to the point where the new blocking read is issued.

------- End of forwarded message -------

From: lisa
Sent: Friday, November 11, 1994 2:47 PM
To: 'ken'
Subject: file off of backup

I tried to use "ausrestore" (aka budtool) to get a file off of backup, but the retrieval didn't work. After a half hour of looking at volume labels it found the right one, then said it was retrieving, and then complained that it couldn't open /dev/tty and couldn't create a directory in /tmp. I'm not sure what would cause such problems, but it seems that ausrestore isn't going to do it for me. The file I need is:

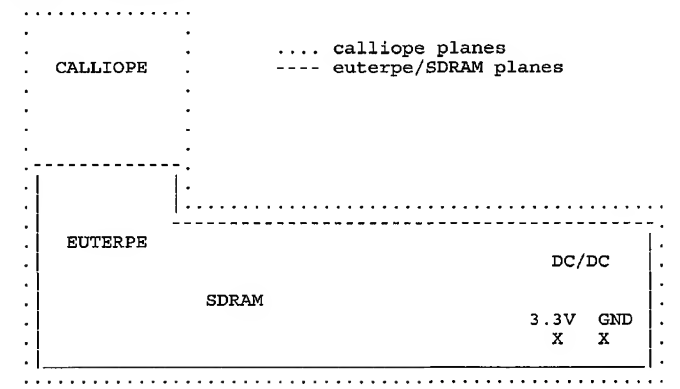
/n/auspex/s6/lisa/src/gnu-tools/sim/terp/cerberus.c

It should have been saved by last night's incremental backup. Could you either get the file for me, or tell me how I can do it myself?

Thanks,
lisa

From: Jean-Yves Michel [yves@thalia]
Sent: Friday, November 11, 1994 3:23 PM
To: 'tbr@thalia'; 'bill@thalia'; 'graham@thalia'; 'tom@thalia'; 'philip@thalia'; 'noel@thalia'
Cc: 'hestia@thalia'
Subject: hestia power planes

Here is the latest proposal, pending a final OK from Tom and Philip on the pcb stack-up: we will have 2 seperate power/gnd planes, one for Euterpe and the SDRAM and one for Calliope and peripherals. The calliope planes will be L-shaped and the other one will be closer to a rectangle.



There will be a small supply voltage difference between euterpe and calliope due to IR drop but the differential interface should not be affected.

In order to have these 4 planes, we will have the following PCB stack-up:

```
component ---------------------- .5oz
           26mils dielectric
power 1   ---------------------- 2oz
           2mils dielectric
ground 1  ---------------------- 2oz
           6mils dielectric
ground 2  ---------------------- 2oz
           2mils dielectric
power 2   ---------------------- 2ox
           26mils dielectric
solder    ---------------------- .5oz
```

outside the outlined area, the 4 internal layer will be used differently to carry power (3.3, 5 and 12V), current carrying ground planes, shields and chassis ground planes.

If you have any objection, raise your voice immediately. A lot of layout will be done this week-end, so the power plane scheme should be finalized by the end of the day.

Jean-Yves

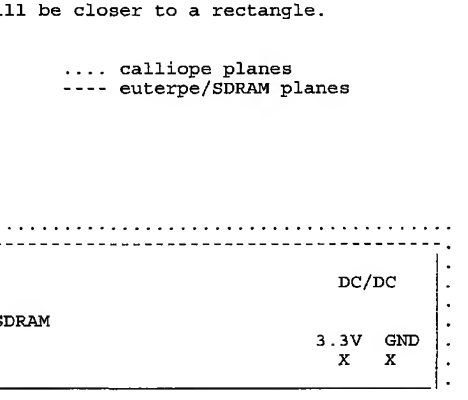
From: philip@microunity.com
Sent: Friday, November 11, 1994 3:39 PM
To: 'Geert Rosseel'; 'hardheads@ambiorix'; 'hestia@ambiorix'
Subject: Re: IMMINENT DECISION : Euterpe SOFA Power

What does this mean to the total power consumption (and therefore dissipation) of the euterpe chip? If most of the chip is SOFA, does this mean a 20% increase in overall chip power consumption?

At 11:40 AM 11/11/94 -0800, Geert Rosseel wrote:
> Hi,
>
>
> In order to make the euterpe logic fit on the 10x10 die, we have to
>increase the power of the SOFA area with 20%.
>This will give all our gates a higher drive capability and therefore we
>can use smaller gates for the same drive.
>
> We are currently rebuilding the library and after that, we'll run a
>set of experiments. If the results are good, this will become a FINAL
>decision. We'll know the results in about a week.
>
>
> Geert

From: philip@microunity.com
Sent: Friday, November 11, 1994 3:52 PM
To: 'Jean-Yves Michel'; 'tbr@thalia'; 'bill@thalia'; 'graham@thalia'; 'tom@thalia'; 'philip@thalia'; 'noel@thalia'
Cc: 'hestia@thalia'
Subject: Re: hestia power planes

At 1:22 PM 11/11/94 -0800, Jean-Yves Michel wrote:
>Here is the latest proposal, pending a final OK from Tom and Philip on
>the pcb stack-up:
>we will have 2 seperate power/gnd planes, one for Euterpe and the SDRAM
>and one for Calliope and peripherals. The calliope planes will be
L-shaped
>and the other one will be closer to a rectangle.



>
>There will be a small supply voltage difference between euterpe and
>calliope due to IR drop but the differential interface should not be
affected.
>
>In order to have these 4 planes, we will have the following PCB stack-up:
>
>component -------------------- .5oz
> 26mils dielectric
>power 1 -------------------- 2oz
> 2mils dielectric
>ground 1 -------------------- 2oz
> 6mils dielectric
>ground 2 -------------------- 2oz
> 2mils dielectric
>power 2 -------------------- 2ox
> 26mils dielectric
>solder -------------------- .5oz
>
>outside the outlined area, the 4 internal layer will be used
>differently to carry power (3.3, 5 and 12V), current carrying ground
>planes, shields
and
>chassis ground planes.
>
>If you have any objection, raise your voice immediately. A lot of
>layout will be done this week-end, so the power plane scheme should be
>finalized by the end of the day.
>
>Jean-Yves

HADCO, our usual PCB source, has sent their sales/tech resources out this week. The construction is not impossible (at first glance) although it seems that it will be more expensive as we will be using more of the non-standard 2 on 2 copper laminate.

More next week. Go ahead and lay it out this weekend anyway. It is most likely a very marginal cost adder to our already expensive PCB.

Of course, we can always console ourselves that we have not (yet) added any blind or buried vias.

Philip Wong

From: tbr
Sent: Friday, November 11, 1994 7:38 PM
To: 'Jean-Yves Michel'
Cc: 'hestia@thalia'
Subject: Re: SDRAM power
Follow Up Flag: Follow up
Flag Status: Red

Jean-Yves Michel wrote (on Fri Nov 11):

Tim Robinson wrote:
>
> Jean-Yves Michel wrote (on Thu Nov 10):
>
> It was decided during an earlier meeting that the SDRAM will be powered
> directly from the DC/DC converter, not using the power planes, in order
> to reduce the supply noise.
>
> Please clarify when that was decided. It's not acceptable to have the
> SDRAM off the plane. It absolutely has to have good decoupling. No
> one puts DRAM on anything other than solid ground and power planes.
>
> Because of possible radiated noise too
> (the distance from SDRAM to DC/DC is a 500MHz 1/4 wave), we are
> planning to use the INT 1 layer (in-between the ground plane and the
> component layer). The power bus will be made of 12 94 mils wide lines,
> alternating power and ground return, 6 mils apart. There will be 2 ground
> shields on both sides and a ground plane on the component side.
>
> Do you agree with this scheme?
>
> Absolutely not.

OK with me for the power planes.
What about using the 2 INT layers to make special power planes for
the SDRAM's?

I think the main issue is keeping the SDRAMS and Euterpe on the same plane.

But before going further, I think we need to re-visit the amount
of noise the SDRAM will inject into the power delivered to Euterpe and Calliope
using the L-shape power plane layout. I unfortunately don't have all
the data for that.

Could you give me a rough estimate of the supply current characteristic
for the SDRAM being accessed.

I cannot find waveforms in any of the databooks. But from experience
I would say you should expect a spike of 50 - 100mA of a few ns
duration during RAS precharge. I would be more worried about the I/O
drivers which are switching full 3V rail to rail with approx 1ns edge
rate into order 20pF We can have about 50 of these switching simultaneously.

For Euterpe and Calliope, we have been using 2A current spikes at 1.2GHz, 300ps wide. Is it OK?

Bill would have to comment on the amplitude and duration. However, the current target cycle time on Euterpe s 1.08GHz (ie 10x the 54MHz reference), so it's contribution will not have the same spectrum as Calliope.

> Following advices from our EMI/FCC consultant, do we have enough
> reservoir capacitances around the SDRAM's to guarantee an acceptable
> ripple.
>
> What is the acceptable ripple?
>

I will re-calculate the acceptable ripple for analog Calliope. I takes into account the noise frequency (100MHZ + odd harmonics from SDRAM), the amount of decoupling on the digital and the analog side and the series impedance of the L-shape power plane.

SDRAM is likely to be running somewhat lower than 100MHz because the vendors have not yet been able to make parts above 83MHz.

We take the SOFA frequency 1080 and divide by an integer to get a frequency lower than but as close as possible to the maximum DRAM rate.

Tim

From: Tim B. Robinson [tbr@thalia]
Sent: Friday, November 11, 1994 7:38 PM
To: 'Jean-Yves Michel'
Cc: 'hestia@thalia'
Subject: Re: SDRAM power

Jean-Yves Michel wrote (on Fri Nov 11):

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> >
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I cannot find waveforms in any of the databooks. But from experience I would say you should expect a spike of 50 - 100mA of a few ns duration during RAS precharge. I would be more worried about the I/O drivers which are switching full 3V rail to rail with approx 1ns edge rate into order 20pF We can have about 50 of these switching simultaneously.

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SDRAM is likely to be running somewhat lower than 100MHz because the vendors have not yet been able to make parts above 83MHz.

We take the SOFA frequency 1080 and divide by an integer to get a frequency lower than but as close as possible to the maximum DRAM rate.

Tim

From: ong (Warren R. Ong)
Sent: Friday, November 11, 1994 8:03 PM
To: 'Tom Laidig'
Cc: 'tbr (Tim B. Robinson)'; 'geert (Geert Rosseel)'; 'hopper (Mark Hofmann)'; 'agc (Alan Corry)'
Subject: Re: resistor code change from 5 to 6

>From Tom Laidig ...
@
@ Bruce Bateman writes:
@ |
@ |I now understand that it has been decided to change the resistor @ |code on euterpe from a value of 5 to 6. Although I haven't seen

(snip)

@
@ I don't think there's any plan to change the resistor code for the @ caches or any other custom block. The problem is that the logic doesn't @ fit in the sofa, and bumping the power level up should help reduce gate @ size.
@

Thanks, Tom. Now I understand the reason for the resistor code change.

Tim & Geert, should all of the exlax arrays in Euterpe be redesigned? Some area savings might be found in the din & dout FF of the array, but no savings will be found in the memory cells and word drivers.

Warren.

From: ong (Warren R. Ong)
Sent: Friday, November 11, 1994 8:08 PM
To: 'Geert Rosseel'
Subject: Re: IMMINENT DECISION : Euterpe SOFA Power

>From Geert Rosseel ...
@
@
@ Hi,
@
@
@ In order to make the euterpe logic fit on the 10x10 die,
@ we have to increase the power of the SOFA area with 20%.
@ This will give all our gates a higher drive capability and therefore @ we can use smaller gates for the same drive.
@
@ We are currently rebuilding the library and after that,
@ we'll run a set of experiments. If the results are good, this @ will become a FINAL decision. We'll know the results in @ about a week.
@
@
@ Geert
@
@

Are the knob domains constructed so that ALL custom blocks have separate knob control from all sofa blocks? If not, we should re-simulate the custom blocks that must share knob domains with lock blocks,

Warren.

From: tbr
Sent: Friday, November 11, 1994 10:49 PM
To: 'Bruce Bateman'
Cc: 'euterpe@kephalos'
Subject: resistor code change from 5 to 6
Follow Up Flag: Follow up
Flag Status: Red

Bruce Bateman wrote (on Fri Nov 11):

> I now understand that it has been decided to change the resistor code on euterpe from a value of 5 to 6. Although I haven't seen any discussion of this decision, I assume it is to help meet the speed targets. However, I should point out that the custom blocks, and particularly the cache were designed at resistor code = 5 and were not simulated at higher values. While I don't have particular concerns regarding functionality, I should point out that at least in the cache, power bus wiring was extremely tight and that the currents used for sizing the busses for IR drops and more importantly for electro-migration were based upon a resistor code of 5. Increasing the code to 6 will likely cause some power busses to exceed their EM limits by the percentage power increase (20%?).

We are investigating this change as a way to reduce the atom count while maintaining the cycle time. There is no reason to change the knob setting for the custom structures. By adjusting the knobs for the SOFA we get the same speed from smaller cells and so can increase density.

Tim

From: Tim B. Robinson [tbr@kephalos]
Sent: Friday, November 11, 1994 10:49 PM
To: 'Bruce Bateman'
Cc: 'euterpe@kephalos'
Subject: resistor code change from 5 to 6

Bruce Bateman wrote (on Fri Nov 11):

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Tim

From: tbr
Sent: Friday, November 11, 1994 10:56 PM
To: 'Jean-Yves Michel'
Cc: 'bill@thalia'; 'graham@thalia'; 'hestia@thalia'; 'noel@thalia'; 'philip@thalia'; 'tom@thalia'
Subject: hestia power planes
Follow Up Flag: Follow up
Flag Status: Red

Jean-Yves Michel wrote (on Fri Nov 11):

Here is the latest proposal, pending a final OK from Tom and Philip
on the pcb stack-up:
we will have 2 seperate power/gnd planes, one for Euterpe and the SDRAM
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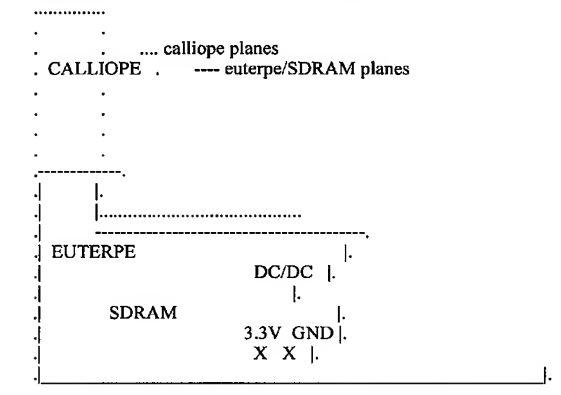

There will be a small supply voltage difference between euterpe and
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In order to have these 4 planes, we will have the following PCB stack-up:

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ground 1 ---------- 2oz
6mils dielectric
ground 2 ---------- 2oz
2mils dielectric
power 2 ---------- 2ox
26mils dielectric
solder ---------- .5oz

outside the outlined area, the 4 internal layer will be used differently to carry power (3.3, 5 and 12V), current carrying ground planes, shields and chassis ground planes.

If you have any objection, raise your voice immediately. A lot of layout will be done this week-end, so the power plane scheme should be finalized by the end of the day.

Looks good to me.
Tim

From: Tim B. Robinson [tbr@thalia]
Sent: Friday, November 11, 1994 10:56 PM
To: 'Jean-Yves Michel'
Cc: 'bill@thalia'; 'graham@thalia'; 'hestia@thalia'; 'noel@thalia'; 'philip@thalia'; 'tom@thalia'
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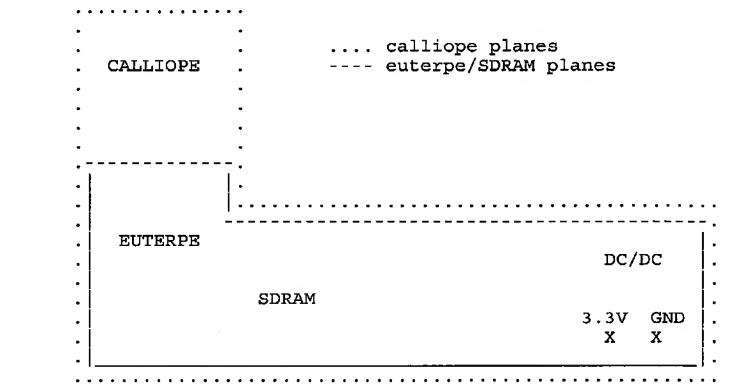

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> will be done this week-end, so the power plane scheme should be
> finalized by the end of the day.

Looks good to me.
Tim

From: tbr (Tim B. Robinson)
Sent: Friday, November 11, 1994 11:14 PM
To: 'philip@microunity.com'
Cc: 'Geert Rosseel'; 'hardheads@ambiorix'; 'hestia@ambiorix'
Subject: Re: IMMINENT DECISION : Euterpe SOFA Power

philip@MicroUnity.com wrote (on Fri Nov 11):

> What does this mean to the total power consumption (and therefore dissipation) of the euterpe chip? If most of the chip is SOFA, does this mean a 20% increase in overall chip power consumption?

It will mean approximately 20% increase in the SOFA component only.
Prior to this change we had about 46W in the SOFA so it will add about 9W. There may be second order effects in our favor resulting from the shorter wires as the average gate size decreases, but that effect is likely to be < 1W.

Tim

From: tbr (Tim B. Robinson)
Sent: Friday, November 11, 1994 11:53 PM
To: 'ong (Warren R. Ong)'
Cc: 'agc (Alan Corry)'; 'geert (Geert Rosseel)'; 'hopper (Mark Hofmann)'; 'Tom Laidig'
Subject: Re: resistor code change from 5 to 6

Warren R. Ong wrote (on Fri Nov 11):

> >From Tom Laidig ...
> @
> @ Bruce Bateman writes:
> @ |
> @ |I now understand that it has been decided to change the resistor
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> Tim & Geert, should all of the exlax arrays in Euterpe be
> redesigned? Some area savings might be found in the din & dout FF
> of the array, but no savings will be found in the memory cells and
> word drivers.

I don't think we should redesign them. The saving would be too small to justify it.

Tim

From: Kurt Wampler [wampler@hestia]
Sent: Friday, November 11, 1994 11:58 PM
To: 'vanthof@hestia'; 'vo@hestia'
Cc: 'geert@hestia'; 'hopper@hestia'; 'lisar@hestia'; 'tbr@hestia'; 'vo@hestia'
Subject: Re: euterpe lvs finished

>vant wrote ....
>>
>>
>>Hi Tom,
>> The euterpe lvs finished. The resulst are in
>>
>> /u/vanthof/compass/mobi/euterpe/tapeout/euterpe.compare
>>
>>There are about 300 devices unmatched. A quick glance through the
>>file shows some problems ...
>>VRR34_0 -> VRR35_0,
>>VRR54_0 -> VRR55_0,
>
Vo replied:

>Kurt confirmed that the domain shorts were caused by a faulty clockbias
SW .
>He has implemented a fix and released them .

These clockbias bugs seem to have a loooong gestation period. This one took many hours to track down and understand. The seed of this problem was planted last December 17, when a couple of lines of code were inserted to add an instance of IFL_DRV at every mast/spar junction. The lines were inserted one line too high in the source code, but this alone caused no malfunction. Many revisions of the clockbias software were made since then. The current problem was introduced in August, when an enhancement was requested to allow the gaff wiring row to be positioned either above or below the mast. Many small code modifications were required to support this change. One additional line was inserted above the out-of-sequence line lurking in the source code. This caused the out-of-sequence line to emit a whole wall of IFL_DRV straps along any spar driving atoms to its left in its last row. This was not caught in the LVS of cgclockbias, however, since those IFL_DRV straps just dangle and don't hook to anything until cgclockbias is instantiated in the main SOFA. The short then finally became apparent in the top-level LVS. It's unfortunate that we didn't catch it earlier, but I can't think of a way we could have, short of LVS'ing cgclockbias in the context of the whole baseplate.

>An update to fix this problem in the snapshot should not invalidate the
>lower baseplate layers but since it will probably take just as long
>(compared to refracturing) to verify that this is really the case ,
>what do you say we just redo the whole thing so we get this change
>along with other proteus changes ?

We can either XOR the existing pattern files after the snapshot area has been updated, or we can just refracture. It's about the same amount of CPU time to do either one; I would probably opt to refracture, since if the XOR found anything wrong, we would just have to refracture again to correct the problem. (The IFL_DRV cell doesn't contain any geometry on the baseplate layers, so this change *should* only affect the metal layers.) If we want to update other cells in proteus which would change some of the baseplate layers, it's only a couple days' runtime to redo the 15 layers we've fractured so far. (Having only one primary chip to fracture instead of three helps quite a bit.)

- Kurt

From: Tim B. Robinson [tbr@hestia]
Sent: Saturday, November 12, 1994 12:04 AM
To: 'Tom Vo'
Cc: 'geert@hestia'; 'hopper@hestia'; 'lisar@hestia'; 'vanthof@hestia'; 'vant'; 'vo@hestia'; 'Kurt Wampler'
Subject: Re: euterpe lvs finished

Tom Vo wrote (on Fri Nov 11):

> vant wrote ....
> >
> >
> >Hi Tom,
> > The euterpe lvs finished. The resulst are in
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>
> (compared to refracturing) to verify that this is really the case , what do you
> say we just redo the whole thing so we get this change along with other proteus
> changes ?

We have still not managed to get a full remake in the snapshot proteus. The timing is running now, but I think we need to pick up the very latest top level BOM (5.570) to see kurt's change.

> We would also need to get a new BOM in the eutepre/verilog/bsrc area to pick up
> the changes in the pads area .
>
> tvo

From: Tim B. Robinson [tbr@hestia]
Sent: Saturday, November 12, 1994 12:12 AM
To: 'Kurt Wampler'
Cc: 'geert@hestia'; 'hopper@hestia'; 'lisar@hestia'; 'vanthof@hestia'; 'vo@hestia'
Subject: Re: euterpe lvs finished

Kurt Wampler wrote (on Fri Nov 11):

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There have been many updates to the proteus snapshot, none of which should have affected baseplate layers. I would suggest we definitely re-run and confirm that that is indeed the case after we manage to get a clean run of the top level proteus make. In the mean time, if it makes sense just to re LVS to make sure the problem really is fixed, we need to get BOM 5.570 into the snapshot. I think we can do that without clobbering the make which is currently running.

Tim

From: hopper (Mark Hofmann)
Sent: Saturday, November 12, 1994 11:16 AM
To: 'Geert Rosseel'
Subject: Re: pim2pif, pifpack ?

Geert Rosseel writes:

> In /n/ghidra/s3/geert/euterpe/verilog/bsrc/gards
>
> I use pim2pif & pifpack using the Makefiles in verilog/bsrc (Makefile.tst),
> in I get a good geert_euterpe-iter.pim.pif.0 but the
> geert_euterpe-iter.pim.pif.0.packed seems t have lost a lot of data.

HI Geert,

Hmm...
I guess the .packed output is long gone by now. Are you still having the problem? I noticed many non-sofa cells in the .pif file. These should just be passed through untouched by pifpack and appear in the output (I thought maybe you were losing those). I don't see anything funny in the current .pif file in theat directory.

-mark

.

From: tbr
Sent: Saturday, November 12, 1994 11:26 AM
To: 'brianl (Brian Lee)'
Cc: 'hopper (Mark Hofmann)'
Subject: Re: phobos
Follow Up Flag: Follow up
Flag Status: Red

Brian Lee wrote (on Sat Nov 12):

> Tim B. Robinson writes:
> |
> |
> I't up but idle. I see it int he list of spice machines. Should deal
> be using it?
> |
> Tim
> |

Hmmmm. Which list? I don't see it on the snapshot list:

```
cat /n/auspex/s23/euterpe-proteus-cp/spice/misc/spice_machines
ares          13     1.50
frodo         13     1.50
kephalos      13     1.50
mercury       13     1.50
merope        13     1.50
narcissus     13     1.50
pegasus       13     1.50
psyche        13     1.50
thalia        13     1.50
ambiorix      10     1.50
hera          10     1.50
pelorus       10     1.50
polyhymnia    10     1.50
```

In the list of tools hopper constructed:

```
hspice        meta-software  rhea   ambiorix ares boa frodo hera kephalos
                             mercury merope narcissus pegasus
                             pelorus phobos polyhymnia psyche thalia
```

Tim

From: arya (Arya Behzad)
Sent: Saturday, November 12, 1994 4:39 PM
To: 'woody@thalia'; 'tbr@thalia'; 'ras@thalia'; 'yves@thalia'; 'dane@thalia'; 'noel@thalia'; 'bill@thalia'; 'rich@thalia'; 'tbe@thalia'; 'graham@thalia'
Cc: 'hestia@thalia'
Subject: Re: Layout review

Done. Setails below.

> From graham@thalia Thu Nov 10 17:52:09 1994
> From: graham@thalia (Graham Y. Mostyn)
> To: woody@thalia, tbr@thalia, ras@thalia, yves@thalia, dane@thalia,
> arya@thalia, noel@thalia, bill@thalia, rich@thalia, tbe@thalia
> Subject: Layout review
> Cc: hestia@thalia, graham@thalia
> Content-Length: 870
> X-Lines: 30
>
> Now that the main board layout is close to completion, we would like
> all of the circuit designers to check the final captured schematics
> and this interim layout, in particular tracing out the sections that
> they own.
>
> We're therefore circulating tomorrow (Friday) schematics and plots to
> the following people, and would appreciate it if you could report to
> Arya at or before the 3PM Monday netlist meeting of discrepancies in
> any of the three databases:

	SECTION	DESIGNER
>	DRAM, Euterpe, smart card	woody, tbr
DONE		
>	Upstream transmitter	ras
DONE		
>	Ch3/4 transmitter	ras
DONE		
>	QPSK RX	ras
DONE		
>	Audio	yves
>	Phone	yves

Jean Yves has done this directly with Patty.

>	Video	dane

Done. Dane will have to review when he comes back on Tuesday.

>	RF receivers	arya

In progress with Pattie

>	Power planes	noel, bill, graham

in progress

>	Power supplies	noel

It looks like we won't have power supply on this board. Am I right?

>	IR	noel

Noel did this directly with Pattie.

>	VCOs, SAW osc.	rich

Done.

>	Mechanical compatibility	tbe

Tom, please use the drawings that Pattie provided. If you need more info, pleaselet me know.

>
> Thanks for your help - the netlist meeting is held in the boxers'
> conference room.
>
> Graham.

>
>

Thanks.

-Arya

From: brianl (Brian Lee)
Sent: Saturday, November 12, 1994 4:41 PM
To: 'Tim B. Robinson'
Cc: 'geert (Geert Rosseel)'; 'brianl (Brian Lee)'
Subject: Re: leafgen

Tim B. Robinson writes:

> How easy is it to change the code generated for the xlib entries?
>
> I am trying to convert euterpe to run on the IKOS accelerator. Up to
> now we have been modeling all the flops as negative edge triggered off
> phi_A2P. IKOS does not have a negative edge triggered primitive flop.
> One way to deal with this would be to replace dffnq globally by dffq
> and change phi_A2P to phi_B2P in each dffq instance. This would then
> be a positive edge triggered flop off the opposite clock edge.
> I can then map that directly to either ikos or zycad primitives.

If I understand you correctly, then for example, in xbffbdf2s.v

```
// VERSION  Version of Sun Sep 11 11:31:14 PDT 1994 NOISREV macromodule xbffbdf2s (
PHI_A2P1C, PHI_B2P1C, PHI_A2P2C, PHI_B2P2C, PHI_A2P3C, PHI_B2P3C, D0_ADMPH, D0_ANDMPH,
Q_AD0PF, Q_AND0PF);

input PHI_A2P1C, PHI_B2P1C;
input PHI_A2P2C, PHI_B2P2C;
input PHI_A2P3C, PHI_B2P3C;
input D0_ADMPH;
input D0_ANDMPH;
output Q_AD0PF, Q_AND0PF;
    supply1 one;
    dffnq #1 (Q_AD0PF, one, D0_ADMPH, one, PHI_A2P1C);
    not(Q_AND0PF, Q_AD0PF);

endmodule
```

the only line that would change is

```
    dffnq #1 (Q_AD0PF, one, D0_ADMPH, one, PHI_A2P1C);
```

to

```
    dffq #1 (Q_AD0PF, one, D0_ADMPH, one, PHI_B2P1C);
```

If this is true, then I think the change is easy. The change would only affect xlib/*.v files and those derived from them (dxlib, zxlib, exlib).
Is this the desired scope or are there other representations that would need to be changed also?

--
Brian L.

From: tbr

Sent: Saturday, November 12, 1994 4:46 PM

To: 'arya (Arya Behzad)'

Cc: 'bill@thalia'; 'pmayer'; 'dane@thalia'; 'graham@thalia'; 'hestia@thalia'; 'noel@thalia'; 'ras@thalia'; 'rich@thalia'; 'tbe@thalia'; 'woody@thalia'; 'yves@thalia'

Subject: Re: Layout review

Follow Up Flag: Follow up

Flag Status: Red

Arya Behzad wrote (on Sat Nov 12):

Done. Setails below.

> From graham@thalia Thu Nov 10 17:52:09 1994
> From: graham@thalia (Graham Y. Mostyn)
> To: woody@thalia, tbr@thalia, ras@thalia, yves@thalia, dane@thalia,
> arya@thalia, noel@thalia, bill@thalia, rich@thalia, tbe@thalia
> Subject: Layout review
> Cc: hestia@thalia, graham@thalia
> Content-Length: 870
> X-Lines: 30
>
> Now that the main board layout is close to completion, we would like
> all of the circuit designers to check the final captured schematics
> and this interim layout, in particular tracing out the sections that
> they own.
>
> We're therefore circulating tomorrow (Friday) schematics and plots to
> the following people, and would appreciate it if you could report
> to Arya at or before the 3PM Monday netlist meeting of discrepancies in
> any of the three databases:
> SECTION DESIGNER
>
> DRAM, Euterpe, smart card woody, tbr
DONE
> Upstream transmitter ras
DONE
> Ch3/4 transmitter ras
DONE
> QPSK RX ras
DONE
> Audio yves
> Phone yves
Jean Yves has done this directly with Patty.

> Video dane
Done. Dane will have to review when he comes back on Tuesday.
> RF receivers arya
In progress with Pattie
> Power planes noel, bill, graham
in progress
> Power supplies noel

It looks like we won't have power supply on this board. Am I right?

We do want it there. We have said that we will probably leave
the DC/DC converter off and use a lab supply to bring up prototypes,
but we need to be able to put the power supply on some boards in order
to be able to measure the noise it generates in the real board/box
environment. Otherwise we will not be able to measure the
effectiveness of the decoupling, planes and shielding at containing
the noise.

> IR noel
Noel did this directly with Pattie.
> VCOs, SAW osc. rich
Done.
> Mechanical compatibility tbe
Tom, please use the drawings that Pattie provided. If you need more info,
pleaselet me know.

>
> Thanks for your help - the netlist meeting is held in the boxers'
> conference room.
>
> Graham.
>
>

Thanks.

-Arya

From: tbr (Tim B. Robinson)
Sent: Saturday, November 12, 1994 4:46 PM
To: 'arya (Arya Behzad)'
Cc: 'bill@thalia'; 'pmayer'; 'dane@thalia'; 'graham@thalia'; 'hestia@thalia'; 'noel@thalia'; 'ras@thalia'; 'rich@thalia'; 'tbe@thalia'; 'woody@thalia'; 'yves@thalia'
Subject: Re: Layout review

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> From graham@thalia Thu Nov 10 17:52:09 1994
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> to Arya at or before the 3PM Monday netlist meeting of discrepancies in
> any of the three databases:

	SECTION	DESIGNER
>	DRAM, Euterpe, smart card	woody, tbr
DONE		
>	Upstream transmitter	ras
DONE		
>	Ch3/4 transmitter	ras
DONE		
>	QPSK RX	ras
DONE		
>	Audio	yves
>	Phone	yves

Jean Yves has done this directly with Patty.

>	Video	dane
Done. Dane will have to review when he comes back on Tuesday.		
>	RF receivers	arya
In progress with Pattie		
>	Power planes	noel, bill, graham
in progress		
>	Power supplies	noel

It looks like we won't have power supply on this board. Am I right?

We do want it there. We have said that we will probably leave the DC/DC converter off and use a lab supply to bring up prototypes, but we need to be able to put the power supply on some boards in order to be able to measure the noise it generates in the real board/box environment. Otherwise we will not be able to measure the effectiveness of the decoupling, planes and shielding at containing the noise.

>	IR	noel
Noel did this directly with Pattie.		
>	VCOs, SAW osc.	rich

Done.
> Mechanical compatibility tbe
Tom, please use the drawings that Pattie provided. If you need more info,
pleaselet me know.

>
> Thanks for your help - the netlist meeting is held in the boxers'
> conference room.
>
> Graham.
>
>

Thanks.

-Arya

From: geert (Geert Rosseel)
Sent: Saturday, November 12, 1994 5:08 PM
To: 'geert'
Subject: call chappell

vant wrote ....
>
>
>Hi Tom,
> The euterpe lvs finished. The resulst are in
>
>   /u/vanthof/compass/mobi/euterpe/tapeout/euterpe.compare
>
>There are about 300 devices unmatched. A quick glance through the file
>shows some problems ...
>VRR34_0 -> VRR35_0,
>VRR54_0 -> VRR55_0,

Kurt confirmed that the domain shorts were caused by a faulty clockbias SW .
He has implemented a fix and released them .

An update to fix this problem in the snapshot should not invalidate the lower baseplate layers but since it will probably take just as long (compared to refracturing) to verify that this is really the case , what do you say we just redo the whole thing so we get this change along with other proteus changes ?

We would also need to get a new BOM in the eutepre/verilog/bsrc area to pick up the changes in the pads area .

tvo

From: tbr
Sent: Saturday, November 12, 1994 5:49 PM
To: 'doi'
Subject: vltree
Follow Up Flag: Follow up
Flag Status: Red

tbr@aphrodite ~/euterpe/ikos 615 % !vl
vltree -D -y ~/proteus/verilog/mlib -y ~/proteus/verilog/xlib test2.v
Extracting names from library /n/auspex/s15/tbr/proteus/verilog/mlib
Extracting names from library /n/auspex/s15/tbr/proteus/verilog/xlib
Processing file test2.v
Adding Local Cells: test2.v
Adding or5_1 Directory test2.v
Adding or2_1 Directory test2.v
test2.v
/n/auspex/s15/tbr/proteus/verilog/mlib/or2_1.v
/n/auspex/s15/tbr/proteus/verilog/mlib/or5_1.v

The two mlib cells should each be calling out one cell from xlib.

From: tom (Tom Laidig)

Sent: Saturday, November 12, 1994 9:08 PM

To: 'Lisa Robinson'

Cc: 'sysadm'; 'doi (Derek Iverson)'; 'tom (Thomas Laidig)'

Subject: Re: forwarded message from Mail Delivery Subsystem

Lisa Robinson writes:

|

|------- Start of forwarded message -------
|Status: RO
|X-VM-v5-Data: ([nil nil nil nil nil nil nil nil]
| ["977" "Sat" "12" "November" "1994" "16:55:17" "GMT" "Mail Delivery Subsystem" "Mailer-Daemon " nil "31"
"Returned mail: Deferred: Name server: host name lookup failure" "^From:" nil nil "11"])
|Return-Path: <Mailer-Daemon>
|Received: from clio.microunity.com by gaea.microunity.com (4.1/muse1.3)
| id AA12491; Sat, 12 Nov 94 08:43:15 PST
|Received: from localhost by clio.microunity.com (8.6.4/muse-sw.2)
| id QAA00205; Sat, 12 Nov 1994 16:55:17 GMT
|Message-Id: <199411121655.QAA00205@clio.microunity.com>
|From: Mailer-Daemon (Mail Delivery Subsystem)
|Apparently-To: <lisar>
|Subject: Returned mail: Deferred: Name server: host name lookup failure
|Date: Sat, 12 Nov 1994 16:55:17 GMT
|
|The original message was received at Sat, 12 Nov 1994 16:55:08 GMT
|from nosferatu.microunity.com [192.216.195.36]
|
| ----- Transcript of session follows -----
|554 mailer mail died with signal 13
|Arguments: mail -r lisar -d tom
|<tom>... Deferred: Name server: host name lookup failure
|
| ----- Original message follows -----
|Return-Path: <lisar>
|Received: from nosferatu.microunity.com by clio.microunity.com (8.6.4/muse-sw.2)
| id QAA00204; Sat, 12 Nov 1994 16:55:08 GMT
|Received: from localhost by nosferatu.microunity.com (8.6.4/muse-sw.2)
| id IAA01254; Sat, 12 Nov 1994 08:54:45 -0800
|Date: Sat, 12 Nov 1994 08:54:45 -0800
|From: lisar (Lisa Robinson)
|Message-Id: <199411121654.IAA01254@nosferatu.microunity.com>
|To: euterpe-checkins-dist, lisar, tbr, tom
|Subject: euterpe/verilog/bsrc Makefile
|
|Update of /p/cvsroot/euterpe/verilog/bsrc
|In directory nosferatu:/N/aphrodite/root/s3/euterpe/verilog/bsrc
|
|Modified Files:
| Makefile
|Log Message:
|
|
|Put back geert's changes.
|
|

|------- End of forwarded message -------
|

Hmmm... 16:55 GMT is 8:55 PST. Clio rebooted this morning, and came up at 9:03 PST. I note that all the other weitek machines except psyche rebooted this morning as well:

```
-> mload weitek
phobos      up  11:28,   0 users,  load 0.00, 0.00, 0.00
thoas       up   9:24,   0 users,  load 0.00, 0.00, 0.00
aphrodite   up  11:27,   0 users,  load 0.00, 0.00, 0.00
marathon    up   9:49,   0 users,  load 0.00, 0.00, 0.00
rimulac     up  10:05,   0 users,  load 0.02, 0.00, 0.00
hestia      up  11:39,   1 user,   load 0.04, 0.00, 0.00
millennium  up   9:43,   0 users,  load 0.05, 0.14, 0.00
mercury     up   8:39,   0 users,  load 0.06, 0.00, 0.00
clio        up  10:00,   6 users,  load 0.30, 0.26, 0.00
psyche      up 50+02:48, 0 users,  load 1.20, 1.05, 0.76
pegasus     up   9:53,   0 users,  load 1.30, 1.28, 1.28
frodo       up   9:38,   0 users,  load 1.32, 1.28, 1.28
thalia      up   9:50,   0 users,  load 1.35, 1.10, 1.14
merope      up   9:29,   0 users,  load 1.36, 1.28, 1.28
narcissus   up   9:50,   0 users,  load 1.37, 1.19, 1.17
ares        up  11:30,   0 users,  load 1.79, 1.51, 0.96
polyhymnia  up   9:29,   0 users,  load 1.84, 1.64, 1.31
-> date
Sat Nov 12 19:07:03 PST 1994
->
```

Do we know why this happened?

--

```
  ooooO  Ooooo
  (  )   (  )
  |( Tom )|
  (  ) L (  )
```

From: tbr
Sent: Saturday, November 12, 1994 11:38 PM
To: 'doi'
Cc: 'woody'
Subject: vltree
Follow Up Flag: Follow up
Flag Status: Red

It cannot handle euterpe/verilog/bsrc/at/at.v. The problem
seems to be:

```
orff16_1/*nand*/ Upa4732Eq8000R11 ( phi_A2P, phi_B2P ,paR10_N[47] ,paR10[46] ,paR10[45] ,paR10[44]
    ,paR10[43] ,paR10[42] ,paR10[41] ,paR10[40] ,paR10[39] ,paR10[38]
    ,paR10[37] ,paR10[36] ,paR10[35] ,paR10[34] ,paR10[33] ,paR10[32] ,pa4732Eq8000R11_N, pa4732Eq8000R11 );
```

where it takes the module name to be

orff16_1/*nand*/

There are other cases such as

```
dorff2_1 /*NandN*/ UfrcEnblR10 ( phi_A2P, phi_B2P ,gvaR8R9[47], gvaR8R9_N[47] ,ndxFrcR9_N[1], ndxFrcR9
[1] ,frcEnblR10_N, frcEnblR10 );
```

where it takes the module name to be /*NandN*/

Looks like stripping comments would be a good move

Tim

From: tbr
Sent: Sunday, November 13, 1994 12:09 AM
To: 'doi'
Subject: vltree
Follow Up Flag: Follow up
Flag Status: Red

There is another problem. It's failing to find some modules.
I have been running it over the whole of euterpe. You can see how by looking at the end ot ~tbr/euterpe/verilog/bsrc/Makefile.

It's clearly getting confused by comments, but I have been stripping them by changing the cpp command which is used to go from .V to .v

Here's the sort of output I'm getting:

ERROR: Cell iosync is not found in any library.
ERROR: Cell orff3_1/*nand*/ is not found in any library.
ERROR: Cell */ is not found in any library.
ERROR: Cell nba16x64_earow is not found in any library.
ERROR: Cell nba16x64_earowi is not found in any library.
ERROR: Cell nbd32x64_earow is not found in any library.
ERROR: Cell nbd32x64_earowi is not found in any library.
ERROR: Cell priority is not found in any library.
ERROR: Cell pqptr is not found in any library.

From: tbr (Tim B. Robinson)
Sent: Sunday, November 13, 1994 12:49 AM
To: 'brianl (Brian Lee)'
Cc: 'geert (Geert Rosseel)'
Subject: Re: leafgen

Brian Lee wrote (on Sat Nov 12):

> Tim B. Robinson writes:
>
> How easy is it to change the code generated for the xlib entries?
>
> I am trying to convert euterpe to run on the IKOS accelerator. Up to now we have been modeling all the flops as negative edge triggered off phi_A2P. IKOS does not have a negative edge triggered primitive flop. One way to deal with this would be to replace dffnq globally by dffq and change phi_A2P to phi_B2P in each dffq instance. This would then be a positive edge triggered flop off the opposite clock edge. I can then map that directly to either ikos or zycad primitives.
>
> If I understand you correctly, then for example, in xbffbdf2s.v
>
> // VERSION Version of Sun Sep 11 11:31:14 PDT 1994 NOISREV
> macromodule xbffbdf2s (PHI_A2P1C, PHI_B2P1C, PHI_A2P2C, PHI_B2P2C, PHI_A2P3C, PHI_B2P3C, D0_ADMPH, D0_ANDMPH, Q_AD0PF, Q_AND0PF);
>
> input PHI_A2P1C, PHI_B2P1C;
> input PHI_A2P2C, PHI_B2P2C;
> input PHI_A2P3C, PHI_B2P3C;
> input D0_ADMPH;
> input D0_ANDMPH;
> output Q_AD0PF, Q_AND0PF;
> supply1 one;
> dffnq #1 (Q_AD0PF, one, D0_ADMPH, one, PHI_A2P1C);
> not(Q_AND0PF, Q_AD0PF);
>
> endmodule
>
> the only line that would change is
>
> dffnq #1 (Q_AD0PF, one, D0_ADMPH, one, PHI_A2P1C);
>
> to
>
> dffq #1 (Q_AD0PF, one, D0_ADMPH, one, PHI_B2P1C);
>
> If this is true, then I think the change is easy. The change would only affect xlib/*.v files and those derived from them (dxlib, zxlib, exlib). Is this the desired scope or are there other representations that would need to be changed also?

That's exactly the change and exactly the scope. I would want to try it out well before we unleashed anything on /u/chip though.

Tim

From: doi (Derek Iverson)
Sent: Sunday, November 13, 1994 3:11 AM
To: 'tbr (Tim B. Robinson)'
Subject: vltree

Tim B. Robinson writes:
>
> There is another problem. It's failing to find some modules.
> I have been running it over the whole of euterpe. You can see how by
> looking at the end ot ~tbr/euterpe/verilog/bsrc/Makefile.
>
> It's clearly getting confused by comments, but I have been stripping
> them by changing the cpp command which is used to go from .V to .v
>
>
> Here's the sort of output I'm getting:
>
> ERROR: Cell iosync is not found in any library.
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> ERROR: Cell nba16x64_earowi is not found in any library.
> ERROR: Cell nbd32x64_earow is not found in any library.
> ERROR: Cell nbd32x64_earowi is not found in any library.
> ERROR: Cell priority is not found in any library.
> ERROR: Cell pqptr is not found in any library.

vltree currently makes the assumption that only module is defined per file. This way it doesn't have to open and parse every file in each possible directory but instead deduce their appropriate names by looking at the filenames. Should I open and parse all files or should we split out modules definitions into their own filename?

I have put some rudimentary comment stripping code in, but until we start using Perl version 5 (which support `minimal' pattern matching) this is done pretty stupidly.

If we had an input line like

    foo /* deleted stuff */ bar /* more deleted stuff */ baz

we would be left with

    foo baz

when I was done. Comments split across lines won't be handled properly either.

If we only have one C style comment per line this shouldn't be a problem.

I don't know where the `priority' name comes from, do you?

Let me know what you think I should do about the first problem I wrote about above.

Derek

From: vanthof (vant)
Sent: Monday, November 14, 1994 10:33 AM
To: 'geert (Geert Rosseel)'; 'tbr (Tim B. Robinson)'
Cc: 'vanthof (Dave Van't Hof)'; 'hopper (Mark Hofmann)'
Subject: topt reporting mux select errors

Morning,
I was running some tests this morning on the tbr_euterpe.edif in Tim's euterpe tree and found a total of 53 instances where the mux selects had no half swing drivers. I'm wondering how you would like this reported.
I currently have topt report the instance name in the log file without changing the exit code status.

What I could do is report the number of failures in the log file, but report the actual instance with all the drivers of it's select lines in the stat file. Would you like the exit code to be non-zero because of these failures? I imagine not, because it would stop all progress until these were fixed.

Comments?
Dave
--
Dave Van't Hof vanthof@microunity.com MicroUnity Systems Engineering, Inc.
"What rolls down stairs, alone or in pairs, rolls over the neighbor's dog?

What's great for a snack and fits on your back? It's log, log, log!"
LOG from BLAMMO! (tm) All kids love Log! #incluce <std_disclaim.h>

From: tbr
Sent: Sunday, November 13, 1994 11:27 AM
To: 'doi (Derek Iverson)'
Subject: vltree
Follow Up Flag: Follow up
Flag Status: Red

Derek Iverson wrote (on Sun Nov 13):

Tim B. Robinson writes:
>
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> I have been running it over the whole of euterpe. You can see how by
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>
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vltree currently makes the assumption that only module is defined per file. This way it doesn't have to open and parse every file in each possible directory but instead deduce their appropriate names by looking at the filenames. Should I open and parse all files or should we split out modules definitions into their own filename?

Splitting out the modules would be a pain, especially as some of the files are automatically generated.

I have put some rudimentary comment stripping code in, but until we start using Perl version 5 (which support `minimal' pattern matching) this is done pretty stupidly.

If we had an input line like

    foo /* deleted stuff */ bar /* more deleted stuff */ baz

we would be left with

    foo baz

when I was done. Comments split across lines won't be handled properly

either.

I have changed the cpp command which we use when processing .V file to .v files to strip them. It won't take out all comments because there are lots of .v's that we get other ways and the comments are actually being put in by the tools so we can tell what went on However, as far as I know the only ones that are causing trouble are the ones put in manually.

> If we only have one C style comment per line this shouldn't be a problem.

> I don't know where the `priority' name comes from, do you?

No, and there are lots of others like `unix.'!
I will systematically remake all the .v's in this class and see how many of these go away.

> Let me know what you think I should do about the first problem I wrote about above.

I think we would need to be able to handle that case and I'm surprised it has not come up before. There is a verilog parser already in perl that is used by the equation handling tools such as Veqn. Talk to hopper, there may be a short cut.

Tim

From: ken (Ken Hsieh)
Sent: Monday, November 14, 1994 11:59 AM
To: 'hchu'
Cc: 'tbr'; 'jt'
Subject: Re: Sun OS 4.1.3

Herman,

It is floating license.

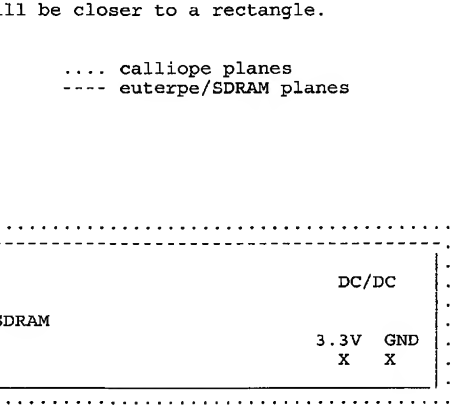
Ken

> From hchu Mon Nov 14 09:28:42 1994
> Date: Mon, 14 Nov 1994 09:28:34 -0800
> From: hchu (Herman Chu)
> To: ken
> Subject: Sun OS 4.1.3
> Content-Length: 1431
>
> Ken,
>
> Can you look into whether the Icepak license is a node lock type or floating
> type. Thank you.
>
> Herman
>
>
> ----- Begin Included Message -----
>
> >From tbr Fri Nov 11 21:50:34 1994
> Date: Fri, 11 Nov 1994 21:50:34 -0800
> From: tbr (Tim B. Robinson)
> To: hchu (Herman Chu)
> Cc: hchu, jt, sysadm
> Subject: Sun OS 4.1.3
> Content-Length: 1058
>
>
> Herman Chu wrote (on Fri Nov 11):
>
> Hi Tim,
>
> I have gotten a trial license for Icepak, a computational fluids dynamics (CFD)
> software package, for my Sun Sparc 2 (phobos). The software requires Sun OS
> 4.1.3 and phobos only has Sun OS 4.1.1. CFD software is very computational
> intensive, a typical job runs minimum 4 hours and it can take as many as
> several days to complete. I would need to have phobos' OS upgraded to
> Version 4.1.3. The software trial is for 35 days from this past Wednesday.
>
> Thank you for your help.
>
> Eric has been working towards upgrading all the suns to 4.1.3, but I'm
> not sure how close he is to being able to do this. Is the license
> node locked to that machine? If not, we are running 4.1.3 on our

> sparc 10 machines. Although these are very busy most of the time
> running jobs related to Euterpe tapeout, you could run jobs on
> godzilla in the background if you nice them down so they only soak up
> otherwize idle cycles. Godzilla is a dual processor machine with each
> processor 2-3x a sparc 2.
>
> Tim
>
>
> ----- End Included Message -----
>
>

From: philip microunity.com
Sent: Monday, November 14, 1994 2:24 PM
To: 'Jean-Yves Michel'; 'tbr@thalia'; 'bill@thalia'; 'graham@thalia'; 'tom@thalia'; 'noel@thalia'
Cc: 'hestia@thalia'
Subject: Re: hestia power planes

At 1:22 PM 11/11/94 -0800, Jean-Yves Michel wrote:
>Here is the latest proposal, pending a final OK from Tom and Philip on
>the pcb stack-up:
>we will have 2 seperate power/gnd planes, one for Euterpe and the SDRAM
>and one for Calliope and peripherals. The calliope planes will be
L-shaped
>and the other one will be closer to a rectangle.



>
>There will be a small supply voltage difference between euterpe and
>calliope due to IR drop but the differential interface should not be
affected.
>
>In order to have these 4 planes, we will have the following PCB stack-up:
>
>component ---------- .5oz
> 26mils dielectric
>power 1 ---------- 2oz
> 2mils dielectric
>ground 1 ---------- 2oz
> 6mils dielectric
>ground 2 ---------- 2oz
> 2mils dielectric
>power 2 ---------- 2ox
> 26mils dielectric
>solder ---------- .5oz
>
>outside the outlined area, the 4 internal layer will be used
>differently to carry power (3.3, 5 and 12V), current carrying ground
>planes, shields
and
>chassis ground planes.
>
>If you have any objection, raise your voice immediately. A lot of
>layout will be done this week-end, so the power plane scheme should be
>finalized by the end of the day.
>
>Jean-Yves

HADCO has replied and have no problem with the PCB construction as proposed by Jean-Yves.

Philip

From: hopper (Mark Hofmann)
Sent: Monday, November 14, 1994 3:47 PM
To: 'Geert Rosseel'
Subject: Re: Rebuild of sub-blocks in Euterpe snapshot

Geert Rosseel writes:

[snip]

NB : Timing problems (exit status 2)

I had a look at this. Billz has checked in his new design but I don't think the control file (nb_control.pim) is up-to-date. He has volunteered to work on this.

I am working on a placement and timing of ICC. I think I will have something by late tonight or tomorrow morning.

-mark

From: hopper (Mark Hofmann)
Sent: Monday, November 14, 1994 4:13 PM
To: 'Geert Rosseel'
Cc: 'brianl (Brian Lee)'; 'ong (Warren R. Ong)'
Subject: Re: nb array timing

Geert Rosseel writes:

> Hi,
>
> NB fails timing because of the EA register file. It has > 2000 hard errors,
> I guess some numbers must not have regenerated correctly. Can you look at this, please
> ?
>
> The outputs are in the Euterpe snapshot :
>
> /n/auspex/s41/euterpe-snapshot/euterpe/verilog/bsrc/nb/gards

EA cells should still have resistor code 5.

Are they getting code 6? How do we model this?

-mark

From: wampler (Kurt Wampler)
Sent: Monday, November 14, 1994 7:40 PM
To: 'paulp'
Cc: 'al'; 'cadettes'; 'geert'; 'tbr'; 'vo'
Subject: Euterpe perforation treatment

Hello, Paul -

Just so this issue doesn't fall through a crack: we need some perforation guidelines for Euterpe. As things currently stand, we have a baseplate snapshot, but nothing has yet been done to deperforate it -- it's still based on cells which contain perforations that are compliant with the last issue of the design rules.

The deperforation of Calliope1 used the following scheme:

1) We hand-edited cells which had a relatively high rep count and removed the perforations -- approximately 130 cells.

2) We ran a Dracula flow to synthesize a deperforation cell which, when overlaid on the original layout, eliminated the rest of the perfs.

Questions:

1) Should we install the (130) deperforated baseplate cells in the proteus area, making them official for Euterpe and future baseplates?

2) Are infinite sheets of metal really acceptable? (If not, then we need to define new perforation parameters.)

3) What dimension should we use for the smallest allowable rectangular perforation? How about donut/feedthrough perfs?

Since baseplate DRC/LVS has commenced, the time is ripe to propagate those deperf edits, if we're going to do it.

- Kurt

From: paulp (Paul Poenisch)
Sent: Monday, November 14, 1994 8:38 PM
To: 'Kurt Wampler'
Cc: 'al (Albert Matthews)'; 'cadettes'; 'geert (Geert Rosseel)'; 'tbr (Tim B. Robinson)'; 'vo (Tom Vo)'
Subject: Re: Euterpe perforation treatment

> Kurt Wampler writes:
>
> Hello, Paul -
>
> Just so this issue doesn't fall through a crack: we need some
perforation
> guidelines for Euterpe. As things currently stand, we have a
> baseplate snapshot, but nothing has yet been done to deperforate it --
> it's still based on cells which contain perforations that are
> compliant with the
last
> issue of the design rules.
>
> The deperforation of Calliope1 used the following scheme:
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> 1) We hand-edited cells which had a relatively high rep count and
removed
> the perforations -- approximately 130 cells.
>
> 2) We ran a Dracula flow to synthesize a deperforation cell which,
> when overlaid on the original layout, eliminated the rest of the
perfs.
>
> Questions:
>
> 1) Should we install the (130) deperforated baseplate cells in the
proteus
> area, making them official for Euterpe and future baseplates?

If the current base plate has the 0.5 um square perforations we need to fill them in. I think we should replace them with larger perforations where we can, see below.

> 2) Are infinite sheets of metal really acceptable? (If not, then we
need
> to define new perforation parameters.)

We don't know the answer to this yet but my gut feel is that infinite sheets will cause some problems. We just can't prove it yet.

> 3) What dimension should we use for the smallest allowable rectangular
> perforation? How about donut/feedthrough perfs?

I've discussed this with all and K.Y., it looks like 1.0 um square perforations are OK, 0.5 um square pers are not OK and we don't know about the values in between. I think that we will be going with a 1.0 um minimum dimention on perforations in the future. I'm going to have to talk with Haim about some sort of rule that forbids 0.5 um wide perforations but allows 0.5 um wide spaces between lines (probably some variation on the notch rule we came up with for poly lines.

> Since baseplate DRC/LVS has commenced, the time is ripe to propagate
those
> deperf edits, if we're going to do it.
>
> - Kurt
>
I agree.

Paul.

From: tbr
Sent: Monday, November 14, 1994 9:20 PM
To: 'geert'; 'bpw'; 'rich'; 'craig'
Cc: 'mnemo'; 'warren'
Subject: i/o byte
Follow Up Flag: Follow up
Flag Status: Red

I think we have more problems. Does the clock input in the current I/O byte have a flop the same as the data bits? If it does we are not using it in Euterpe/Calliope. If it doesn't we have a problem on Mnemo. This is because we currently rely on the dual outputs of the inbound side to determine the odd vs even bytes. Once the sampling clock is doubled up, and we only use one of the 2 paths we will use that bit of information. We need to be able to sample the clock just as a data bit in order to pass this information through.

Suppose we solve that one, possibly by adding in another flop, then Mark Warren raises another issue for testing with the PLL bypassed.

In this case we still need a sofa clock at 2x the channel clock.
In an earlier discussion with Mark, we had erroneously concluded that we would handle this on the tester by providing vectors with a 2x clock, suitably skewed. This canno work, because again we will have no way to recover the 9th bit. If we feel it is important to be able to test with the PLL bypassed, then we will need to add an additional input path to supply a 2x clock when in bypass mode. This should be straightforward because we already have the 'cli' custom block available.

Tim

From: graham (Graham Y. Mostyn)
Sent: Monday, November 14, 1994 9:31 PM
To: 'hestia'
Cc: 'graham'
Subject: Netlist meeting minutes

Minutes of PC board netlist meeting, Monday, Nov 14:

* Goal for Gerber plots distributed and ready for review is Thursday 11/17, at 3pm.
* Plan for final ECOs is Tuesday 11/15 noon. (Later changes will significantly delay DRCs and Gerber.)

1) Transmitter component change and prt change to be completed (arya/ras) by 11/15.

2) Sense lines from RO power supply; add connection traces with jumper to Euterpe or Calliope, with initial jumper set to Euterpe. (arya/woody)

3) 24v/-5v switching converters. Layout to be completed using existing schematic, although noise performance unacceptable.
Layout guidelines and review; noel.

4) "Thieving pattern" to be added by Hadco. Philip to identify location for vendor. Also, Philip to develop board level fiducials.

5) Define chassis ground around dc/dc converter, and tie audio/video/S video/IR connector grounds to chassis ground.
(tbe/noel); verilog changes - woody.

6) Final mechanical verification with solid modeller (tbe)

7) Define topside castings (arya/tbe)

8) Develop reference designators (dan albers). Back-annotation not currently supported, a work-around required for component labelling on board.

9) S video prt; slots on component do not appear to match board; noel/patty to investigate.

10) Vias to be placed tieing chip substrate to ground (arya/graham)

From: geert (Geert Rosseel)
Sent: Monday, November 14, 1994 10:57 PM
To: 'bpw'; 'stick'; 'vo'
Cc: 'tbr'
Subject: Euterpe custom block interfaces

Hi,

I am a bit worried about the interfaces from the custom blocks to the sofa on Euterpe. I think the following things should be reviewed :

1. Clock connection from the sofa to the custom blocks. This is only for the register file and TLB. The layout of Euterpe should be reviewed to check the strength of this connection. We should have made strong connections, but it should be independently checked.

2. Power connections to the custom blocks. Where do the blocks get their powre from : nominally and under test ? Are these connections strong enough, are there weak links ? This too should be checked on the Euterpe layout.

3. Timing : the powerlevels of the interfaces should be checked to the custom blocks ... The best way to do this is probably to independently derive from the timing tables what strength is needed and then check if the strengths we actually have are adequate.

We are working on automating all three of the above interface checks, but I am pretty sure we're not going to have thsi implmented before Euterpe tape-out. Can you please spend some time checking the above items and make sure we haven't made a misatke in assembly of the chip ?

If you think something else should be checked, please let us know.

Thank's

Geert

From: vanthof (vant)
Sent: Monday, November 14, 1994 11:00 PM
To: 'Paul Poenisch'
Cc: 'wampler (Kurt Wampler)'; 'cadettes'; 'tbr (Tim B. Robinson)'; 'al (Albert Matthews)'; 'geert (Geert Rosseel)'
Subject: Re: Euterpe perforation treatment

Paul Poenisch writes:
>
>I've discussed this with all and K.Y., it looks like 1.0 um square
perforations
>are OK, 0.5 um square pers are not OK and we don't know about the
>values
in
>between. I think that we will be going with a 1.0 um minimum dimention
on
>perforations in the future. I'm going to have to talk with Haim about
some
>sort of rule that forbids 0.5 um wide perforations but allows 0.5 um
>wide spaces between lines (probably some variation on the notch rule we
>came
up with
>for poly lines.

When you refer to "forbids 0.5 um wide perferations but allows 0.5 um wide spaces", are you thinking of small square holes less than 1 um on a side?

If so, then this is actually a very simple check to impliment. In fact, it's a simplification of the check for allowable pedestal sizes.

Dave
--
Dave Van't Hof vanthof@microunity.com MicroUnity Systems Engineering, Inc.
"What rolls down stairs, alone or in pairs, rolls over the neighbor's dog?

What's great for a snack and fits on your back? It's log, log, log!"
LOG from BLAMMO! (tm) All kids love Log! #incluce
<std_disclaim.h>

From: geert (Geert Rosseel)
Sent: Monday, November 14, 1994 11:09 PM
To: 'bill'; 'ong'; 'tbr'
Subject: iobyte

Hi ,

On one of the Euterpe byte-channels, the input section is pretty far away fron the SOFA, hidden behind the D-Cache.

Is there a problem in the timing of the signals coming out of the byte-channel into the SOFA, if these signals have a varying load-capacitance ? These signals have already been clocked by the quadrature clock and run from the byte-channel into IO .

Geert

From: geert (Geert Rosseel)
Sent: Monday, November 14, 1994 11:42 PM
To: 'billz'; 'brianl'; 'dickson'; 'mws'; 'tbr'; 'vo'; 'woody'
Cc: 'hopper'
Subject: Rebuild of sub-blocks in Euterpe snapshot

Hi,

I reran in the snapshot all the blocks that have run before. I used the new timing numbers (power * 1.2) :

AU : Timing problems (exit status 2)
CC : Placement problems
CDIO : O.K.
CJ : O.K.
CK : O.K.
CP : O.K.
CTIOD : O.K.
CTIOI : Timing problems (exit status 2)
DR : O.K.
DRIO : O.K.
ES : Timing problems (No convergence after 8 iter.)
GF : O.K.
GT : O.K.
HC : Placement problems
IO : O.K.
LT : O.K.
MC : O.K.
MST : O.K.
NB : Timing problems (exit status 2)
RG : O.K.
SR : O.K.

Geert

.

From: tbr
Sent: Tuesday, November 15, 1994 1:02 AM
To: 'geert (Geert Rosseel)'
Cc: 'bpw'; 'lisar'; 'stick'; 'vo'
Subject: Euterpe custom block interfaces
Follow Up Flag: Follow up
Flag Status: Red

Geert Rosseel wrote (on Mon Nov 14):

Hi,

I am a bit worried about the interfaces from the custom blocks to the sofa on Euterpe. I think the following things should be reviewed :

1. Clock connection from the sofa to the custom blocks. This is only for the register file and TLB. The layout of Euterpe should be reviewed to check the strength of this connection. We should have made strong connections, but it should be independently checked.

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We are working on automating all three of the above interface checks, but I am pretty sure we're not going to have thsi implmented before Euterpe tape-out. Can you please spend some time checking the above items and make sure we haven't made a misatke in assembly of the chip ?

If you think something else should be checked, please let us know.

We also need to check the algorithmic side of the timing interfaces on all multi-cycle paths. Lisar has this in hand, but we may want a final review that we have all cases covered.

Tim

From: tbr (Tim B. Robinson)
Sent: Tuesday, November 15, 1994 1:02 AM
To: 'geert (Geert Rosseel)'
Cc: 'bpw'; 'lisar'; 'stick'; 'vo'
Subject: Euterpe custom block interfaces

Geert Rosseel wrote (on Mon Nov 14):

Hi,

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If you think something else should be checked, please let us know.

We also need to check the algorithmic side of the timing interfaces on all multi-cycle paths. Lisar has this in hand, but we may want a final review that we have all cases covered.

Tim

From: tbr
Sent: Tuesday, November 15, 1994 1:07 AM
To: 'geert (Geert Rosseel)'
Cc: 'bill'; 'ong'
Subject: iobyte
Follow Up Flag: Follow up
Flag Status: Red

Geert Rosseel wrote (on Mon Nov 14):

Hi ,

On one of the Euterpe byte-channels, the input section is pretty far away fron the SOFA, hidden behind the D-Cache.

Is there a problem in the timing of the signals coming out of the byte-channel into the SOFA, if these signals have a varying load-capacitance ? These signals have already been clocked by the quadrature clock and run from the byte-channel into IO .

I would not expect a problem, because we have generous clock skew tolerance. We need a spice check on the prop delay of the worst path though to make sure the driver is high enough powered.

Tim

From: tbr (Tim B. Robinson)
Sent: Tuesday, November 15, 1994 1:07 AM
To: 'geert (Geert Rosseel)'
Cc: 'bill'; 'ong'
Subject: iobyte

Geert Rosseel wrote (on Mon Nov 14):

> Hi ,
>
> On one of the Euterpe byte-channels, the input section is pretty far away fron the SOFA, hidden behind the D-Cache.
>
> Is there a problem in the timing of the signals coming out of the byte-channel into the SOFA, if these signals have a varying load-capacitance ? These signals have already been clocked by the quadrature clock and run from the byte-channel into IO .

I would not expect a problem, because we have generous clock skew tolerance. We need a spice check on the prop delay of the worst path though to make sure the driver is high enough powered.

Tim

From: tbr
Sent: Tuesday, November 15, 1994 1:08 AM
To: 'geert (Geert Rosseel)'
Cc: 'billz'; 'brianl'; 'dickson'; 'hopper'; 'mws'; 'vo'; 'woody'
Subject: Rebuild of sub-blocks in Euterpe snapshot
Follow Up Flag: Follow up
Flag Status: Red

Geert Rosseel wrote (on Mon Nov 14):

> Hi,
>
> I reran in the snapshot all the blocks that have run before. I used the new timing numbers (power * 1.2) :

Do you have comparative atom counts?

Tim

From: tbr (Tim B. Robinson)
Sent: Tuesday, November 15, 1994 1:08 AM
To: 'geert (Geert Rosseel)'
Cc: 'billz'; 'brianl'; 'dickson'; 'hopper'; 'mws'; 'vo'; 'woody'
Subject: Rebuild of sub-blocks in Euterpe snapshot

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>
> I reran in the snapshot all the blocks that have run before. I used the new timing numbers (power * 1.2) :

Do you have comparative atom counts?

Tim

From: geert (Geert Rosseel)

Sent: Tuesday, November 15, 1994 1:24 AM

To: 'tbr'

Cc: 'billz'; 'brianl'; 'dickson'; 'hopper'; 'mws'; 'vo'; 'woody'

Subject: Re: Rebuild of sub-blocks in Euterpe snapshot

I just rebuild the toplevel and it's not looking as good as I had hoped. However, when I let it power-down the interfaces (based on the nof file information), I save another 10% in ato,s. I am now in the process of generating power.tab.local files for all the sub-blocks based on my top-level.

Geert

From: Warren R. Ong [ong@ares]
Sent: Tuesday, November 15, 1994 6:32 AM
To: 'Mark Hofmann'
Cc: 'tbr@aphrodite'; 'hopper@aphrodite'; 'brianl@aphrodite'; 'geert@LOCAL'; 'ong@aphrodite'; 'Alan Corry'
Subject: Re: nb array timing

```
>From Mark Hofmann ...
@
@ Tim B. Robinson writes:
@    Mark Hofmann wrote (on Tue Nov 15):
@       Geert Rosseel writes:
@
@          Ea cells will also run from code 6.
@      There is no way we can sepertate them out
@          from regular sofa.
@
@       Umm...
@       This is a major re-design for Warren. Do we have time?
@
@    Why is that?  I assume they will get faster, but do we expect races
to
@    develop?  My assumption in promoting this change is that we would not
@    have to redesign enything, we just give up a little optimality.
@
@ Perhaps I over-spoke. I do think that simulations will need to be run @ to confirm
proper operation at rcd=6, but these should be done in any @ event (for most resistor
codes, I would think).
@
Yes, all of the exlax arrays will be re-simulated.  There is an inherent race between the
write wordline and the write bitlines.
We always want the write wordline to switch first.  I do not anticipate any problems with
rcd 6.

For euterpe, I only recall 2 arrays: nba16x64 and nbd32x64.  Are there any others?

Thanks,
Warren.
```

From: Mark Hofmann [hopper@rhodan]
Sent: Tuesday, November 15, 1994 7:36 AM
To: 'Warren R. Ong'
Cc: 'tbr@aphrodite'; 'hopper@aphrodite'; 'brianl@aphrodite'; 'geert@LOCAL'; 'ong@aphrodite'; 'agc@ares'
Subject: Re: nb array timing

Warren R. Ong writes:
> Yes, all of the exlax arrays will be re-simulated. There is an
> inherent race between the write wordline and the write bitlines.
> We always want the write wordline to switch first. I do not
> anticipate any problems with rcd 6.
>
> For euterpe, I only recall 2 arrays: nba16x64 and nbd32x64. Are
> there any others?
>
> Thanks,
> Warren.

Those are the 2 that I know of.

-hopper

From: solo (John Campbell)
Sent: Tuesday, November 15, 1994 9:27 AM
To: 'Tim B. Robinson'
Cc: 'geert (Geert Rosseel)'; 'bpw (B. P. Wong)'; 'rich (Rich McCauley)'; 'craig (Craig Hansen)'; 'mnemo'; 'warren (Mark Warren)'
Subject: Re: i/o byte

as Tim B. Robinson was saying .....
..
..
..I think we have more problems. Does the clock input in the current ..I/O byte have a flop the same as the data bits? If it does we are not ..using it in Euterpe/Calliope. If it doesn't we have a problem on ..Mnemo. This is because we currently rely on the dual outputs of the ..inbound side to determine the odd vs even bytes. Once the sampling ..clock is doubled up, and we only use one of the 2 paths we will use ..that bit of information. We need to be able to sample the clock just ..as a data bit in order to pass this information through.
..
..Suppose we solve that one, possibly by adding in another flop, then ..Mark Warren raises another issue for testing with the PLL bypassed.
..
..In this case we still need a sofa clock at 2x the channel clock.
..In an earlier discussion with Mark, we had erroneously concluded that ..we would handle this on the tester by providing vectors with a 2x ..clock, suitably skewed. This canno work, because again we will have ..no way to recover the 9th bit. If we feel it is important to be able ..to test with the PLL bypassed, then we will need to add an additional ..input path to supply a 2x clock when in bypass mode. This should be ..straightforward because we already have the 'cli' custom block ..available.
..
..Tim
..
..
i don't see how we can debug without a bypass clock.

....
regards,
solo a.k.a. John Campbell x516

From: billz (Bill Zuravleff)
Sent: Tuesday, November 15, 1994 9:48 AM
To: 'geert'
Subject: Re: Rebuild of sub-blocks in Euterpe snapshot

Where might we find the gards/design.stat and other such files to help you correct these problems?

billz

From: Eric Murray [ericm@MicroUnity.com]

Sent: Tuesday, November 15, 1994 10:01 AM

To: 'sysadm@MicroUnity.com'

Subject: disk usage report

For directories over 100 megs:
user's info:

brianl	1422
hopper	1154
chip	1029
fwo	989
dickson	907
craig	880
tbr	874
geert	847
jsw	684
gmo	595
rozen	575
vanthof	559
h	488
vijay	485
brendan	479
sandeep	471
rocky	448
qua	436
brian	417
wampler	374
ken	338
doi	300
khp	288
fur	287
agc	281
tbe	270
tom	268
hchu	259
wingard	247
ras	234
veena	231
hessam	231
fung	220
peter	206
bill	203
rich	202
jeffm	197
iimura	197
haim	190
lisar	189
gregg	185
mws	184
al	181
billz	174
vandyke	173
ericm	172
solo	169
cox	160
bpw	155

guarino 153
lisa 151
randy 142
woody 140
karzes 140
chuck 139
jeff 135
fambro 134
dane 132
octtools 130
albers 127
kgk 127
tomho 127
mikew 119
yves 117
ong 112
hayes 111
paulb 109
larryk 103

packages info:
chip-euterpe-buil 2039
calliope 1579
news 1421
euterpe-verify 1011
chip-archive 871
orchis_snap 811
chip-proteus 787
calliope-disk2 730
losf-build 685
ptolemy 652
soft-src 639
cadence 636
archives 603
sun 568
cadence.hp 552
calliope1-fractur 487
chip-calliope 484
soft 477
chip-terpsichore 475
sgi 377
x11r5_ken_p26 329
castor-retry 325
bosf-build 323
chip-archive-terp 318
calliope-overflow 297
mips-4.52 282
osf 260
chip-archive-mnem 259
X11r4 228
bsd 222
cadence_doc 221
synopsys 216
cadence_doc_9402 215
budtool_db 190
budtool 181
Motif 177
mechanica 164
sgi5 152

bigtmp	147
ucberl	147
ikos	147
vlsi.v8r4_2	145
proe_tmp	138
ftp	134
khoros	134
proe_13.0	134
calliope-verify	132
iimura.be	128
gnu	125
lib	121
bsd43	115
frame-4.0.3	115
svr4	114
X11r5	111
chip-mdunit	105
motif1.2	101

machine	user megs	package megs	total megs	max capacity	% used
auspex	20262	19051	39313	59499	66%
rama	3697	2244	5942	9428	63%
rhea	215	1602	1817	2484	73%
gaea	5	1803	1808	1780	101%
cronus	612	2214	2827	6208	45%

auspex rama rhea gaea cronus:				
24791	26914	51707	79399	65%

From: paulp (Paul Poenisch)
Sent: Tuesday, November 15, 1994 10:29 AM
To: 'vant'
Cc: 'wampler (Kurt Wampler)'; 'cadettes'; 'tbr (Tim B. Robinson)'; 'al (Albert Matthews)'; 'geert (Geert Rosseel)'
Subject: Re: Euterpe perforation treatment

> Dave van't Hof writes:
>
> Paul Poenisch writes:
> >
> >I've discussed this with all and K.Y., it looks like 1.0 um square perforations
> >are OK, 0.5 um square pers are not OK and we don't know about the values in
> >between. I think that we will be going with a 1.0 um minimum
> >dimention on
> >perforations in the future. I'm going to have to talk with Haim
> >about some
> >sort of rule that forbids 0.5 um wide perforations but allows 0.5 um wide
> >spaces between lines (probably some variation on the notch rule we
> >came up with
> >for poly lines.
>
> When you refer to "forbids 0.5 um wide perferations but allows 0.5 um wide
> spaces", are you thinking of small square holes less than 1 um on a side?
> If so, then this is actually a very simple check to impliment. In
> fact,

> it's a simplification of the check for allowable pedestal sizes.
>
> Dave
> --
> Dave Van't Hof vanthof@microunity.com MicroUnity Systems Engineering, Inc.
> "What rolls down stairs, alone or in pairs, rolls over the neighbor's dog?
> What's great for a snack and fits on your back? It's log, log, log!"
> LOG from BLAMMO! (tm) All kids love Log! #incluce <std_disclaim.h>
>

Actually it's a little more complex than that. 0.5 um wide by X um long perforations are also a problem, we don't know what X is but it's definately larger than 3 um. We would like to eliminate all holes in the metal that have either dimention less than 1.0 um. But we want to allow 0.5 um spaces where the ends are not closed off (which the vast majority should be). Cases where a metal space is formed by a fork in a metal line which later widens are a little harder to call at this point, but we probably don't want the minimum space to extens for longer than some fixed, but currently unknown, distance.

Paul.

From: vanthof (vant)
Sent: Tuesday, November 15, 1994 10:34 AM
To: 'Paul Poenisch'
Cc: 'vanthof@acteon.microunity.com'; 'wampler (Kurt Wampler)'; 'cadettes'; 'tbr (Tim B. Robinson)'; 'al (Albert Matthews)'; 'geert (Geert Rosseel)'
Subject: Re: Euterpe perforation treatment

Paul Poenisch writes:
>
>>
>Actually it's a little more complex than that. 0.5 um wide by X um
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>that
have
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where
>the ends are not closed off (which the vast majority should be). Cases
where
>a metal space is formed by a fork in a metal line which later widens
>are
a
>little harder to call at this point, but we probably don't want the
minimum
>space to extens for longer than some fixed, but currently unknown,
distance.
>
>Paul.
>

Thanks. The current hole filling algorithm looks for holes which are less than 12 square microns in area, plus a few other requirements.
Converting
that flow to do a drc check is feasable once some numbers can be pinned down.

Dave

--
Dave Van't Hof vanthof@microunity.com MicroUnity Systems Engineering,
Inc.
"What rolls down stairs, alone or in pairs, rolls over the neighbor's dog?

What's great for a snack and fits on your back? It's log, log, log!"
LOG from BLAMMO! (tm) All kids love Log! #incluce
<std_disclaim.h>

From: brianl microunity.com (Brian Lee)
Sent: Tuesday, November 15, 1994 10:54 AM
To: 'Mark Hofmann'
Cc: 'geert@MicroUnity.com'; 'ong (Warren R. Ong)'
Subject: Re: nb array timing

Mark Hofmann writes:

> Geert Rosseel writes:
>
> Hi,
>
> NB fails timing because of the EA register file. It has > 2000 hard errors,
> I guess some numbers must not have regenerated correctly. Can you look at this, please ?
>
> The outputs are in the Euterpe snapshot :
>
> /n/auspex/s41/euterpe-snapshot/euterpe/verilog/bsrc/nb/gards
>
> EA cells should still have resistor code 5.
>
> Are they getting code 6? How do we model this?

Hmmmm. Two things. The snapshot last failed in ged/ea before it re-ran any of the exlax cells. Whatever is there is from before. However, when I restart it they will extract there numbers from similar xb cells and thus get code 6 ...

--
Brian Lee brianl@microunity.com
MicroUnity Systems Engineering (408) 734-8100

From: bill (William Herndon)
Sent: Tuesday, November 15, 1994 11:32 AM
To: 'geert'; 'tbr'
Cc: 'ong'
Subject: Re: iobyte

> From tbr Mon Nov 14 23:06:55 1994
> Date: Mon, 14 Nov 1994 23:06:51 -0800
> From: tbr (Tim B. Robinson)
> To: geert (Geert Rosseel)
> Cc: bill, ong
> Subject: iobyte
> Content-Length: 640
>
>
> Geert Rosseel wrote (on Mon Nov 14):
>
>
> Hi ,
>
> On one of the Euterpe byte-channels, the input section is
> pretty far away fron the SOFA, hidden behind the D-Cache.
>
> Is there a problem in the timing of the signals coming out
> of the byte-channel into the SOFA, if these signals have a
> varying load-capacitance ? These signals have already been
> clocked by the quadrature clock and run from the byte-channel
> into IO .
>
> I would not expect a problem, because we have generous clock skew
> tolerance. We need a spice check on the prop delay of the worst path
> though to make sure the driver is high enough powered.
>
> Tim
>
>
>
>

I have a spice framework that i used for calliope that can be used for this probably with some small modification. The actual circuits and identification of parasitics is, however questionable. Nobody seems to own the whole thing.
A number of people have been involved, tbr, alan, rich dickson. I am very concerned about something falling in a crack here because we don't have some sort of unified circuit description.

From: lisa
Sent: Tuesday, November 15, 1994 11:41 AM
To: 'software-checkins-dist'
Subject: gnu-tools/sim/terp v_mem.c

```
Update of /p/cvsroot/gnu-tools/sim/terp
In directory calliope:/N/auspex/root/s6/lisa/src/gnu-tools/sim/terp

Modified Files:
      v_mem.c
Log Message:

Removed old way of enabling translation (by writing to first ltlb).
```

From: lisa
Sent: Tuesday, November 15, 1994 11:48 AM
To: 'software-checkins-dist'
Subject: gnu-tools/sim/terp events.c

```
Update of /p/cvsroot/gnu-tools/sim/terp
In directory calliope:/N/auspex/root/s6/lisa/src/gnu-tools/sim/terp

Modified Files:
      events.c
Log Message:

Cleaned up system_reg_access() to be consistent about latency.
It also is known to be fast-on-chip, so it does not need to handle nb stuff.
```

From: Geert Rosseel [geert@godzilla]

Sent: Tuesday, November 15, 1994 2:37 PM

To: 'brianl@godzilla'; 'hopper@godzilla'; 'lisar@godzilla'; 'rich@godzilla'; 'tbr@godzilla'; 'wampler@godzilla'

Cc: 'graham@godzilla'

Subject: Euterpe PLL's

Hi,

We have change the knob-settings on all SOFA to 6, but Rich would like to keep the current PLL as is (optimized with a knobsetting of 5)

We've discussed two options :

-> rebuild the PLL with rcd = 6
This is quite a bit of work and Rich likes to keep the margin to go from 5 to 7.

-> build different sets of libraries at different knob-settings
We all think this is a good idea because we may need the different libraries for other purposes (like Mnemo) However, this is going to be a lot of work and probably not finished before Euterpe tape-out.

So, the compromise is :

Build power.tab files for the PLL sofa that fix the powerlevels of all the instances in the PLL SOFA. Then, topt will not change any of the gates from the current PLL and the resulting SOFA should be the same as it is now, independently of what knob setting we use. While topt will not change anything, it will still verify that the PLL meets timing.

From: Kurt Wampler [wampler@thoas]
Sent: Tuesday, November 15, 1994 3:45 PM
To: 'brianl@godzilla'; 'geert@godzilla'; 'hopper@godzilla'; 'lisar@godzilla'; 'rich@godzilla'; 'tbr@godzilla'
Cc: 'graham@godzilla'
Subject: Re: Euterpe PLL's

Geert writes:

> We have change the knob-settings on all SOFA to 6, but Rich would like
>to keep the current PLL as is (optimized with a knobsetting of 5)
>
> We've discussed two options :
>
> -> rebuild the PLL with rcd = 6
> This is quite a bit of work and Rich likes to keep the
> margin to go from 5 to 7.

Actually, with the speed improving slightly, and the cell footprints either staying the same or getting smaller, there's a good chance that just re-running the Make would yield a successful build. However, keeping the 5:7 margin seems like a compelling reason to want to stay with the cell sizes tuned for rcd=5 operation.

> -> build different sets of libraries at different knob-settings
> We all think this is a good idea because we may need
> the different libraries for other purposes (like Mnemo)
> However, this is going to be a lot of work and probably not
> finished before Euterpe tape-out.
>
> So, the compromise is :
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> all the instances in the PLL SOFA. Then, topt will not change any of
> the gates from the current PLL and the resulting SOFA should be the
> same as it is now, independently of what knob setting we use. While
> topt will not change anything, it will still verify that the PLL
> meets timing.

We can certainly hard-code every single component's power level, but this means that the PLL gardswarts won't be able to track any subsequent changes in the timing numbers as they are refined. Would it be more robust instead to tighten the cycle time target for these gardswarts to get back the guardband that would otherwise be lost by going from rcd=5 -> rcd=6 ? I think it would be worth a try, since it doesn't involve much effort (change one line in the Makefile and re-make). I guess the major effort would be re-doing the SPICE simulation of the final results, although we could perhaps just diff the power levels of all instances before and after, and if they didn't change (or increased) we would know that we kept our guardband.

Further comments?

- Kurt

From: Rich McCauley [rich@pegasus]
Sent: Tuesday, November 15, 1994 4:54 PM
To: 'wampler@thoas'
Cc: 'brianl@godzilla'; 'geert@godzilla'; 'hopper@godzilla'; 'lisar@godzilla'; 'tbr@pegasus'
Subject: Re: Euterpe PLL's

It seems that as long as the timing would be checked by topt, leaving them as they currently are would be fine. As timing files change, topt should alert us to any timing failures.

rich

> From wampler@thoas Tue Nov 15 13:44:45 1994
> Date: Tue, 15 Nov 1994 13:44:41 -0800
> From: wampler@thoas (Kurt Wampler)
> To: brianl@godzilla, geert@godzilla, hopper@godzilla, lisar@godzilla,
> rich@godzilla, tbr@godzilla
> Subject: Re: Euterpe PLL's
> Cc: graham@godzilla
> Content-Length: 2153
>
> Geert writes:
> ------------
> > We have change the knob-settings on all SOFA to 6, but Rich would
> >like to keep the current PLL as is (optimized with a knobsetting of
> >5)
> >
> > We've discussed two options :
> >
> > -> rebuild the PLL with rcd = 6
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> > margin to go from 5 to 7.
>
> Actually, with the speed improving slightly, and the cell footprints
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> just re-running the Make would yield a successful build. However,
> keeping the 5:7 margin seems like a compelling reason to want to
> stay with the cell sizes tuned for rcd=5 operation.
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> >
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>
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> in the timing numbers as they are refined. Would it be more robust
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> to tighten the cycle time target for these gardswarts to get back the
> guardband that would otherwise be lost by going from rcd=5 -> rcd=6 ?
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> although
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after,
> and if they didn't change (or increased) we would know that we kept
our
> guardband.
>
> Further comments?
>
> - Kurt
>

From: Tim B. Robinson [tbr@aphrodite]
Sent: Tuesday, November 15, 1994 5:11 PM
To: 'Warren R. Ong'
Cc: 'Alan Corry'; 'brianl@aphrodite'; 'geert@LOCAL'; 'hopper@aphrodite'; 'Mark Hofmann'; 'ong@aphrodite'
Subject: Re: nb array timing

Warren R. Ong wrote (on Tue Nov 15):
> Yes, all of the exlax arrays will be re-simulated. There is an inherent race between the write wordline and the write bitlines. We always want the write wordline to switch first. I do not anticipate any problems with rcd 6.

How easily can we verify we have no race at any code setting? We certainly intend to operate at code 1 in low power standby mode.

> For euterpe, I only recall 2 arrays: nba16x64 and nbd32x64. Are there any others?

I think these are the only 2.

From: Tom Laidig [tom@clio]
Sent: Tuesday, November 15, 1994 5:12 PM
To: 'Paul Poenisch'
Cc: 'Thomas Laidig'; 'Albert Matthews'; 'cadettes@clio'; 'Geert Rosseel'; 'Tim B. Robinson'; 'Tom Vo'
Subject: Re: Euterpe perforation treatment

Paul Poenisch writes:

> Kurt Wampler writes:
>
> Questions:
>
> 1) Should we install the (130) deperforated baseplate cells in the proteus
> area, making them official for Euterpe and future baseplates?

If the current base plate has the 0.5 um square perforations we need to fill them in. I think we should replace them with larger perforations where we can, see below.

> 2) Are infinite sheets of metal really acceptable? (If not, then > we need
> to define new perforation parameters.)

We don't know the answer to this yet but my gut feel is that infinite sheets will cause some problems. We just can't prove it yet.

> 3) What dimension should we use for the smallest allowable rectangular
> perforation? How about donut/feedthrough perfs?

I've discussed this with all and K.Y., it looks like 1.0 um square perforations are OK, 0.5 um square pers are not OK and we don't know about the values in between. I think that we will be going with a 1.0 um minimum dimention on perforations in the future. I'm going to have to talk with Haim about some sort of rule that forbids 0.5 um wide perforations but allows 0.5 um wide spaces between lines (probably some variation on the notch rule we came up with for poly lines.

> Since baseplate DRC/LVS has commenced, the time is ripe to propagate those
> deperf edits, if we're going to do it.
>
> - Kurt
>
I agree.

Paul.

OK, we all agree that we need to do something pronto, but the precise rules are unclear at present. So, let me propose a specific plan of action that we can take to try to get much

closer to what we want than where we are, hopefully without expending lots of energy doing things that won't be necessary. Darts, overripe fruit, etc. are _strongly_ encouraged.

1) Try to eliminate all holes we know of (except doughnuts around feedthroughs, which obviously can't be eliminated) in the drawn data, ignoring any concerns about over-large sheets. Assume that the rules limiting sheet size, when they are available, will allow enough wiggle room that we can add the holes automatically in the back end, without the need for manual intervention.

2) Add a check to the DRC flow for each metal layer (incl ContPed and vias, of course) that will flag as an error any hole that does not include at least one area of at least 1u square.

3) Worry about anything else later.

--

```
oooo0   Ooooo
(  _)   (_  )
| (  Tom  ) |
(__)  L  (__)
```

From: tbr
Sent: Tuesday, November 15, 1994 5:13 PM
To: 'Geert Rosseel'
Cc: 'brianl@godzilla'; 'graham@godzilla'; 'hopper@godzilla'; 'lisar@godzilla'; 'rich@godzilla'; 'wampler@godzilla'
Subject: Euterpe PLL's
Follow Up Flag: Follow up
Flag Status: Red

Geert Rosseel wrote (on Tue Nov 15):

Hi,

We have change the knob-settings on all SOFA to 6, but Rich would like to keep the current PLL as is (optimized with a knobsetting of 5)

We've discussed two options :

-> rebuild the PLL with rcd = 6
This is quite a bit of work and Rich likes to keep the margin to go from 5 to 7.

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So, the compromise is :

Build power.tab files for the PLL sofa that fix the powerlevels of all the instances in the PLL SOFA. Then, topt will not change any of the gates from the current PLL and the resulting SOFA should be the same as it is now, independently of what knob setting we use. While topt will not change anything, it will still verify that the PLL meets timing.

Sounds like the right compromize, but given the new timing data assumes code 6, how will topt correctly verify timing based on that data, given we will actually be operating it with code 5?

Tim

From: Tim B. Robinson [tbr@aphrodite]
Sent: Tuesday, November 15, 1994 5:13 PM
To: 'Geert Rosseel'
Cc: 'brianl@godzilla'; 'graham@godzilla'; 'hopper@godzilla'; 'lisar@godzilla'; 'rich@godzilla'; 'wampler@godzilla'
Subject: Euterpe PLL's

Geert Rosseel wrote (on Tue Nov 15):

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Sounds like the right compromize, but given the new timing data assumes code 6, how will topt correctly verify timing based on that data, given we will actually be operating it with code 5?

Tim

From: Paul Poenisch [paulp@acteon]
Sent: Tuesday, November 15, 1994 6:02 PM
To: 'Tom Laidig'
Cc: 'Albert Matthews'; 'cadettes@acteon'; 'Geert Rosseel'; 'Tim B. Robinson'; 'Tom Vo'
Subject: Re: Euterpe perforation treatment

Tom Laidig writes:
>
> OK, we all agree that we need to do something pronto, but the precise
> rules are unclear at present. So, let me propose a specific plan of
> action that we can take to try to get much closer to what we want than
> where we are, hopefully without expending lots of energy doing things
> that won't be necessary. Darts, overripe fruit, etc. are _strongly_
> encouraged.
>
> 1) Try to eliminate all holes we know of (except doughnuts around
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> will allow enough wiggle room that we can add the holes
> automatically in the back end, without the need for manual
> intervention.
>
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> and vias, of course) that will flag as an error any hole that
> does not include at least one area of at least 1u square.
>
> 3) Worry about anything else later.
>
> --
>
```
     ooooO   Ooooo
     (  _)   (_  )
     | (  Tom  ) |
     (__)  L  (__)
```
>
This sounds reasonable. I would suggest that we might want to run some test cases on re-perferizing the metal with a larges size hole (say 1.0 um x 1.0 um) to see if there will be any serious problems, like too much reduction in cross sectional area or problems with certain width metal lines.

Paul.

From: lisa
Sent: Tuesday, November 15, 1994 6:23 PM
To: 'software-checkins-dist'
Subject: gnu-tools/sim/terp cycles.c

```
Update of /p/cvsroot/gnu-tools/sim/terp
In directory calliope:/N/auspex/root/s6/lisa/src/gnu-tools/sim/terp

Modified Files:
      cycles.c
Log Message:

- Allocate 2% of text-size in bytes, not in instructions, for from-to arcs.
- Only realloc tostruct's if new limit is larger than previous one.
```

From: Curtis Abbott [abbott@tallis]
Sent: Tuesday, November 15, 1994 6:34 PM
To: 'tbr@tallis'
Cc: 'craig@tallis'; 'dickson@tallis'
Subject: esum

I've gone around most people in my group and couldn't find any ardent lovers of esum. It replaces about 15 instructions, so if there's a need for it, it'll definitely be a win. People like it, but they're not using it and don't have specific ideas about how they would.

I'd say if it'll make tapeout happen sooner, you can get rid of it.

- Curtis

From: Jeff Marr [jeffm@kephalos]
Sent: Tuesday, November 15, 1994 7:23 PM
To: 'euterpe@kephalos'
Subject: faking onchip start address

As more of real ifetch goes into the design, the current way of forcing execution to begin onchip, even though the pc is in rom space, will cease to work. The current way does not actually change the pc.

Already, I have been bitten three times by side-effects of this:

> Any branch-and-link operation loads the real, not faked, pc into r0. I think/hope that I have made sure that no pre- or post-event pc's depend on addresses derived from a branch and link. There is also a kludge in the SW test scaffolding to work around this.
>
> The IF exception HW currently assumes that an offchip instruction address is cacheable - and should have "reasonable" itag entries, never mind whether the gtlb indicates that the address is in a cacheable page. (I think this is a bug.) This was stopping ex10test from running, and is currently worked around.
>
> Starting a simulation run with memory management forced on runs into the problem above immediately, preventing the _V (shortened for verilog) tests from running.

I spoke with mws today, and he indicated that there no free way to force the reset pc to be the start of ibuffer. At the cost of one more 0/1 generator, a force would be possible, by clever grouping of the 0's and 1's. Whether this would work on zycad is not clear.

Alternately, we could always pay the price of fetching the 6 * 5 instructions required to branch to the the beginning of ibuffer. This is very costly in simulation time.

Comments?

jeffm

From: Kurt Wampler [wampler@thoas]
Sent: Tuesday, November 15, 1994 7:43 PM
To: 'rich@pegasus'
Cc: 'brianl@godzilla'; 'geert@godzilla'; 'hopper@godzilla'; 'lisar@godzilla'; 'tbr@pegasus'
Subject: Re: Euterpe PLL's

Wampler wrote:

> We can certainly hard-code every single component's power level, but this
> means that the PLL gardswarts won't be able to track any subsequent changes
> in the timing numbers as they are refined. Would it be more robust instead
> to tighten the cycle time target for these gardswarts to get back the
> guardband that would otherwise be lost by going from rcd=5 -> rcd=6 ? I
> think it would be worth a try, since it doesn't involve much effort
> (change one line in the Makefile and re-make). I guess the major effort
> would be re-doing the SPICE simulation of the final results, although we
> could perhaps just diff the power levels of all instances before and after,
> and if they didn't change (or increased) we would know that we kept our
> guardband.
>
> Further comments?
>
> - Kurt
>

Rich replied:

@It seems that as long as the timing would be checked by topt, leaving them as @they currently are would be fine. As timing files change, topt should alert @us to any timing failures.
@
@rich

I think there are a couple of hazards here.

1) We would be freezing an optimized version of the design without any way of reproducing it from first principles -- bootstrapping and burning the bridge behind us, so to speak.

2) Topt won't warn us if our margin at rcd=5 starts to erode with updates to the timing libraries; we won't get a fatal error until the design fails at rcd=6.

- Kurt

From: Geert Rosseel [geert@ambiorix]

Sent: Tuesday, November 15, 1994 7:51 PM

To: 'geert@godzilla'; 'tbr@aphrodite'

Cc: 'brianl@godzilla'; 'graham@godzilla'; 'hopper@godzilla'; 'lisar@godzilla'; 'rich@godzilla'; 'wampler@godzilla'

Subject: Re: Euterpe PLL's

Tim says :

> how will topt correctly verify timing based on that
> data, given we will actually be operating it with code 5?

Thst is the hole in this strategy, we have no assurance that the PLL sofa will run at speed with resistor code 5.

In the meeting thsi morning, we were assuming that rebuilding the PLL with different knob-settings was a big deal. However, Kurt does not believe so. The other idea is to run with rcd=6 and use a more agressive timing number. This too, of course does not assure that we will meet timing with rcd = 5.

Geert

From: Tim B. Robinson [tbr@aphrodite]
Sent: Tuesday, November 15, 1994 11:34 PM
To: 'Guillermo A. Loyola'
Cc: 'dickson@bilbo'; 'euterpe@aphrodite'; 'jeffm@rimulac'; 'lisar@rimulac'; 'Veena Malwankar'
Subject: Re: shift overflow instructions

Guillermo A. Loyola wrote (on Thu Nov 3):

> I though Rich was still looking at possibly implementing those using the lms hardware. Otherwise I guess I'll have to change terp to be bug-compatible with the hardware (Bug because if the instruction does not do what it is supposed to it just shouldn't be there, but yea I know, checking for it to produce the exceptions is more atomes, right?).

Checking to cause the exception is trivial and we will add it. We also have the gates designed for the overflow check and if our latest routing experiments with the new knob setting leave empty space we could cut them in. I doubt that will happen.

Tim

From: tbr
Sent: Wednesday, November 16, 1994 12:04 AM
To: 'Mark Hofmann'
Subject: Re: euterpe and cache drc tests
Follow Up Flag: Follow up
Flag Status: Red

Mark Hofmann wrote (on Wed Nov 9):

> Tim B. Robinson writes:
>
> > Better start some serious budget planning for 95. We are already way over.
> >
> > We have ordered an evaluation of a 90MHz dual sparc module (eta 4 weeks) and according to don there is expected to be an announcement from sun in the next week or so of 100MHz modules. (The ones we have now are 50MHz I think). So there is a possibility of a significant speedup at modest cost.
>
> Okay.
> I don't have any idea what the '95 budget looks like.
>
> I think we should plan on needing more hardware, especially as we will have multiple chips in design, verification, and fracture/tapeout.
>
> I would approach this by saying that we will be able to offset our hardware purchases by some amount as we reduce our software (CAD) costs by moving to our own home-grown tools.
>
> Should we meet to discuss this further?

I tlaked to steve some and he'd going to do some analysis of 1994 actual spending and relate that to headcount growth, so we can use that as a starting point for projection.

Tim

From: Jay Tomlinson [woody@demeter]
Sent: Wednesday, November 16, 1994 12:08 AM
To: 'Tim B. Robinson'
Subject: forwarded message from Craig Hansen

Tim B. Robinson wrote (on Tue Nov 15):

> As a result of this did you change anything? Assuming you didn't
> did your decision get incorporated into bob's document.

To be honest I haven't even looked into it since I have been working on hc changes. The problem with it is that it adds more atoms to euterpe.
I will talk to bob to make sure it is updated there.

Jay

From: Mark Hofmann [hopper@tomato]
Sent: Wednesday, November 16, 1994 12:20 AM
To: 'Tim B. Robinson'
Subject: Re: euterpe and cache drc tests

Tim B. Robinson writes:

> I talked to steve some and he'd going to do some analysis of 1994 actual spending and relate that to headcount growth, so we can use that as a starting point for projection.

Okay. Let me know when we need to get together.

-thanks,
hopper

From: Brian Lee [brianl@marathon]
Sent: Wednesday, November 16, 1994 12:31 AM
To: 'Dave Van't Hof'
Cc: 'Geert Rosseel'; 'Brian Lee'
Subject: nb topt warnings

Hi,

In

/n/auspex/s41/euterpe-snapshot/euterpe/verilog/bsrc/nb/gards/nb-final.topt
.log

I find:

(snip)

```
      Reading pin cap values from
/n/auspex/s41/euterpe-snapshot/euterpe/proteus
/exlax/caps/cap.lib
```

(snip)

```
    Ignoring these nets:
      phi_b2p phi_a2p vref_0ph
```

Warning! No vref_0ph pin capacitance data for ealporl5nf8s3x4a Warning! No vref_0ph pin capacitance data for ealporl4nf8s3x3a Warning! No vref_0ph pin capacitance data for eawwlvref16s2x4a Warning! No vref_0ph pin capacitance data for ealporl6nf8s3x4a

(lots more warnings about no pin capacitance data)

However, in the cap.lib file, this data is present. Any ideas?

Thanks,

--
Brian L.

From: tbr
Sent: Wednesday, November 16, 1994 12:32 AM
To: 'Wayne Freitas'
Cc: 'gap@echidna'; 'lisar@echidna'; 'mouss@echidna'
Subject: AST NDA (the saga)
Follow Up Flag: Follow up
Flag Status: Red

Wayne Freitas wrote (on Wed Nov 9):

Tim;
cc Grant and John;

Tim, as you know I would like to use the AST box to help us in the bring-up and testing of Hestia by providing a standalone interface that connected directly to Hermes. Currently the AST box has a 500MB internal bus but only supports a 200MB digital interface. When I spoke to the AST engineers a while back they were thinking about upgrading the interface to 500MB but not until 3rd Q of 95. I inquired about designing an interface for us that works around the 300MB range, and there response was positve, and what seemed of relative ease. Since then I have been trying to get a NDA signed, but have run into a multitude of problem with AST signing our NDA. So the question I have is, how much data constitutes signing an NDA, can we have them sign our NDA under some form of understanding on our part. I have outline two approaches as to what I view as necessary.

1) (minimum)
Data acquision and stimulus rate of 350MHz. (requires us to design interface circuit)

I don't see why we would need an NDA just to request a generic interface at a specified data rate. What would be involved in the design of the interface circuits? If you have already identified components that would be compatible with our requirements perhaps it would be adequate to specify those components (or the specs of those components). That would then not involve any direct disclosure of our own interfaces

2) (perfered)
Vol, Vil, Voh, Vih, Iol, Iil, Ioh, Iil, min-max clk duty cycle, clk to data set-up and hold time, Clock requirement (divide by 2 for stimulus), pin capacitance, data overshoot and undershoot max, data and clk signals differential.

As indicted before, I have always viewed the AST as a necessary bring-up tool to help exerise Calliope/Euterpe in a standalone mode for board and system level tests. We can still use the AST without the modification, but to connect to Hermes would require a level translator interface, and the PLL would have to be bypassed which defeats the purpose. Any help would be greatly appreciated.

Thanks,

Wayne

>
>I had a telephone conversation with AST (Applied Signal) and they
>informed me that they could not execute an NDA with us and give us the
>assurance that any AST employee would be bound by that agreement. It
>seems that they do not execute NDA's with their people and as a result
>none of their employees would be bound by our agreement - After
>discussing this with Lois, I put Applied Signal on an internal mission
>to find a compromise, if any.
>
>So, what do they have a need to know? Can we proceed without an NDA?
>
>Grant

From: vant [vanthof@hestia]
Sent: Wednesday, November 16, 1994 1:11 AM
To: 'Brian Lee'
Cc: 'vanthof@marathon'; 'geert@marathon'; 'brianl@marathon'
Subject: Re: nb topt warnings

```
Brian Lee writes:
>
>Hi,
>
>In
>
>/n/auspex/s41/euterpe-snapshot/euterpe/verilog/bsrc/nb/gards/nb-final.t
>op
t.log
>
>I find:
>
>(snip)
>
>      Reading pin cap values from
/n/auspex/s41/euterpe-snapshot/euterpe/proteus
>/exlax/caps/cap.lib
>
>(snip)
>
>    Ignoring these nets:
>     phi_b2p phi_a2p vref_0ph
>
>Warning!  No vref_0ph pin capacitance data for ealporl5nf8s3x4a
>Warning!  No vref_0ph pin capacitance data for ealporl4nf8s3x3a
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>Warning!  No vref_0ph pin capacitance data for ealporl6nf8s3x4a
>
>(lots more warnings about no pin capacitance data)
>
>However, in the cap.lib file, this data is present.  Any ideas?
>
>Thanks,
>
>--
>    Brian L.
>

Hmmm.  I don't know what's causing this.  I'll look into it.  A first pass glance seems to
indicate that topt really things this pin is missing the cap data.  So now I need to spend
more time in the debugger.

I'll keep you posted.

Thanks,
Dave

--
Dave Van't Hof   vanthof@microunity.com   MicroUnity Systems Engineering,
Inc.
"What rolls down stairs, alone or in pairs, rolls over the neighbor's dog?

What's great for a snack and fits on your back? It's log, log, log!"
LOG  from BLAMMO! (tm)    All kids love Log!        #incluce
<std_disclaim.h>
```

From: Lisa Robinson [lisar@aphrodite]
Sent: Wednesday, November 16, 1994 10:13 AM
To: 'craig@aphrodite'; 'lisar@aphrodite'
Subject: Registered copy generated

```
Copy created by:    lisar
Copy created at:    Wed Nov 16 08:12:47 PST 1994
Copy number:        282
Copy registered to: Curtis Abbott
Input file:
/u/craig/documents/Terpsichore/Terpsichore.macps.gz.des
Output file:        /u/craig/documents/Terpsichore/Terpsichore.ps
Printed to:         rsh plotter lpr -PCraig
Recorded in file:   /u/craig/documents/RegistrationLog

[This message generated by /u/craig/bin/macpstops]
```

From: Curtis Abbott [abbott@tallis]
Sent: Wednesday, November 16, 1994 11:35 AM
To: 'Paul Poenisch'
Cc: 'Albert Matthews'; 'calliope@acteon'; 'Geert Rosseel'; 'Graham Y. Mostyn'; 'Lisa Robinson'; 'Tim B. Robinson'
Subject: Metal changes in calliope

Paul Poenisch wrote (on Wed Nov 16):

> Graham and Geert,
>
> In reading through Curtis's report on the QAM and NTSC receiver review meeting I noticed that at least three changes in the metallization layers of calliope to correct errors or improve it's performance were mentioned. Since I didn't
> ...

I'm not the competent party to figure out all the tradeoffs here, but I believe the strong expectation is that getting the already taped out Calliope under some probes is going to reveal other design changes that we need to make, probably in both the digital and analog areas.
Also, none of the envisioned or already designed metal changes are required to check out the chips. Building things costs dollars, but so does taping them out. Given all that, it seems unlikely that doing another tapeout now will result in an overall decrease in dollars and time spent.

- Curtis

From: Tom Laidig [tom@clio]
Sent: Wednesday, November 16, 1994 11:53 AM
To: 'Curtis Abbott'
Cc: 'paulp@acteon'; 'al@acteon'; 'calliope@acteon'; 'geert@acteon'; 'graham@acteon'; 'lisar@acteon'; 'tbr@acteon'; 'Thomas Laidig'
Subject: Re: Metal changes in calliope

Curtis Abbott writes:

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Yeah, I believe the proper tradeoff is to try to lump all our changes into one. I don't think any of the metal changes Curtis's original message referred to have actually been made; perhaps the design changes have been made, but not a new placement and route.

Also, the report from Photronics this morning (which arrived shortly after Paul sent his message) claims they fedex'ed the contact pedestal and metall masks yesterday.

--
Tom L

From:	tbr
Sent:	Wednesday, November 16, 1994 1:29 PM
To:	'Paul Poenisch'
Cc:	'Curtis Abbott'; 'Albert Matthews'; 'calliope@acteon'; 'Geert Rosseel'; 'Graham Y. Mostyn'; 'Lisa Robinson'
Subject:	Metal changes in calliope
Follow Up Flag:	Follow up
Flag Status:	Red

Paul Poenisch wrote (on Wed Nov 16):

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Since the Calliope metal reticles have not been made yet (Dupont still has not succeeded in making the contact pedestal layer), both Al and I agreed that we should make any improvements in the device we can and re-issue the tapes to the mask shops. It is a waste of the fab's time to make something we know isn't right to begin with. Note that when we are full up in production each wafer will cost us about $2000 to make and in pilot production it will be closer to $10000 each, plus $8000 to $10000 per reticle. This means that if we build 5 lots of each revision of a device to check it out (12 wafers per lot) it costs us about $700000 per turn. Cutting out one revision of Calliope will pay for itself very easily.

Except that if our burn rate is $80000/day and doing another tapeout now for Calliope, delays us by 10 days to having working Euterpe it will cost us more overall (see below).

I realize that there may be schedule impacts if we turn Calliope now but the cost of not turning it could be a lot higher in both schedule and $'s. If there are any improvements we can make in Calliope we should do it now before any reticles are made.

We know of several corrections that need to be made. However, non of these are thought to be show stoppers as far as being able to demonstrate Hestia in a controlled envronment. They would be show stoppers for real deployment in trials.

We have not been going through a re-tape out exercise for two reasons. First, (and graham should comment more on this), there is a very high likelyhood of having to make changes in the analog areas after we charaterize parts before they can be prodution ready anyway. So making a mask change now to correct well understood problems that we know how to work around is no help there. Second, and more importantly in my mind, doing this would delay Euterpe yet futher, and without a working euterpe so that we can run software on both chips together we will not be able to shake out system level problems that

will also likely be show stoppers if they occur. (Remember our entire verification effort to date is equivalent to a small fraction of 1 second of real time operation at 1GHz.)

So, while I agree that making fixes we already know about would be highly desirable if there were no schedule impact, I feel that in the overal plan, the critical path is getting the first limping version of Euterpe and Calliope together, and that this goal will be negatively impacted by another full blown verification and tapeout cycle on Calliope right now.

Tim

From: Tim B. Robinson [tbr@aphrodite]
Sent: Wednesday, November 16, 1994 1:29 PM
To: 'Paul Poenisch'
Cc: 'Curtis Abbott'; 'Albert Matthews'; 'calliope@acteon'; 'Geert Rosseel'; 'Graham Y. Mostyn'; 'Lisa Robinson'
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Tim

.

From: tbr

Sent: Wednesday, November 16, 1994 1:55 PM

To: 'Tom Laidig'

Cc: 'Curtis Abbott'; 'al@acteon'; 'calliope@acteon'; 'geert@acteon'; 'graham@acteon'; 'lisar@acteon'; 'paulp@acteon'; 'Thomas Laidig'

Subject: Re: Metal changes in calliope

Follow Up Flag: Follow up

Flag Status: Red

Tom Laidig wrote (on Wed Nov 16):

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> |
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> into one. I don't think any of the metal changes Curtis's original
> message referred to have actually been made; perhaps the design changes
> have been made, but not a new placement and route.

The changes have been made and the affected blocks have been re-routed. We have not rerouted the top level.

> Also, the report from Photronics this morning (which arrived shortly
> after Paul sent his message) claims they fedex'ed the contact pedestal
> and metal1 masks yesterday.

Tim

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Sent: Wednesday, November 16, 1994 1:55 PM
To: 'Tom Laidig'
Cc: 'Curtis Abbott'; 'al@acteon'; 'calliope@acteon'; 'geert@acteon'; 'graham@acteon'; 'lisar@acteon'; 'paulp@acteon'; 'Thomas Laidig'
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Tim

From: Graham Y. Mostyn [graham@polyhymnia]
Sent: Wednesday, November 16, 1994 1:56 PM
To: 'graham@acteon'; 'geert@acteon'; 'calliope@acteon'; 'paulp@acteon'
Cc: 'al@acteon'; 'abbott@acteon'; 'tbr@acteon'; 'lisar@acteon'
Subject: Re: Metal changes in calliope

I believe that we should use the existing tapes that have already been released to make our first Calliope wafers.

My expectation is that while many of the analog sections will show reasonable functionality and be characterizable on first silicon, we may require as many as two full mask changes (all layers) before a full-function Hestia can be produced in moderate volumes for trial deployment.

The metal corrections so far identified pale into insignificance compared to the diffusion changes that will most likely be required after this first evaluation; and none of the metal corrections preclude making the initial diagnosis.

I therefore feel that we should focus CAD/design energies on Euterpe and Mnemo right now, and reserve these Calliope metal corrections, (along with probably a much more substantial set after first silicon
evaluation) for the rev. 2 mask set.

Graham.

> From paulp@acteon Wed Nov 16 08:41:02 1994
> From: paulp@acteon (Paul Poenisch)
> Subject: Metal changes in calliope
> To: graham@acteon (Graham Y. Mostyn), geert@acteon (Geert Rosseel),
> calliope@acteon
> Date: Wed, 16 Nov 94 8:40:51 PST
> Cc: al@acteon (Albert Matthews), abbott@acteon (Curtis Abbott),
> tbr@acteon (Tim B. Robinson), lisar@acteon (Lisa Robinson)
> X-Mailer: ELM [version 2.3 PL11]
> Content-Length: 1346
>
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>

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To: 'Tim B. Robinson'
Cc: 'Graham Y. Mostyn'; 'Albert Matthews'; 'Curtis Abbott'; 'calliope@acteon'
Subject: Re: Metal changes in calliope

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> Euterpe and Calliope together, and that this goal will be negatively
> impacted by another full blown verification and tapeout cycle on
> Calliope right now.
>
> Tim
>
>
>
>
I agree with most of your points. In talking to ras it became clear that I hadn't

expressed one of the major worries that Al and I have. We all
under-
stand that the first revision of Calliope had little chance of being usable in a final product, even before the problems we now know about were discovered, because of the fact that many of the circuits would need tweeks to be fully functional. We are concerened that if the changes that we now know are needed, that haven't been included in the current revision, also need tweeks then not putting them onto the revision now means that we will need another full design turn later to incorporate those tweeks. This would mean that not only would Calliope 1 have little chance of being commercially usable but we're also admitting that Calliope 2 will not be usable. If this is the case them were saving 10 days on the schedule now at the cost of 2 months or more later (redesign, varification, fracture, mask generation, fab and test).
This
dosen't sound like a good trade-off.

Paul.

From: Kevin Peterson [khp@MicroUnity.com]
Sent: Wednesday, November 16, 1994 4:25 PM
To: 'agc@MicroUnity.com'
Cc: 'tbr@MicroUnity.com'; 'abbott@MicroUnity.com'; 'yam@MicroUnity.com'
Subject: Re: bit error rate testing

> I would think that the smart card interface is more along the lines of
> what we need, IR would require us to take the "symbol clock" and
> multiply it to get a serial clock. calliope top-level indicates that
> all SO output pins are connected to pads (I'm not sure about the
> IO_DIRECTION field though). This should give you 6 bits + clk.

> If we were to increase the number of clock options then would this
> suffice ?

I counted only 6 output pins for SO including the I/O direction bit.
We would need another bit/pin to provide a clock that's synthesized in software. We would also have to run the output interface at least 2x the symbol rate and every once in a while we would add an extra cycle between clock edges to maintain synchronization with the real symbol clock.

Fur brought up the point that we might be able to use the ttl output pins on euterpe that are used to drive the LEDs. Apparently there are
8 of them? Is there any validity to this approach?

In response to tbr's question, a "full mux" data output is definitely outlined in the Toltec spec as part of their HSSI interface and it sure isn't defined.

- -Kevin
------- end -------

From: Richard Dickson [dickson@demeter]
Sent: Wednesday, November 16, 1994 5:13 PM
To: 'tbr@demeter'
Subject: mnemo pll in range detect

tim,

i've got rich m's in range detector logic first cut done. i still need to simulate it a bit more. i placed and routed it in a tmp directory in my euterpe directory tree. i'd like to check it in the mnemo directory tree. what are your thoughts on where it should go ie mnemo/verilog/src/ck ???

dickson

From: Derek Iverson [doi@demeter]
Sent: Wednesday, November 16, 1994 5:19 PM
To: 'guarino@demeter'; 'gmo@demeter'; 'sandeep@demeter'; 'gregg@demeter'; 'jeffm@demeter'; 'wayne@demeter'
Cc: 'hestia@demeter'
Subject: Software Bringup Meeting - November 16, 1994

Software Bringup Meeting

November 16, 1994

Next Meeting: November 23 at 10:00 am.

Review of the bring-up section of the euterpe schedule.
Review of CBI related issues.

Attendees: jeffm, guarino, gmo, wayne, doi, sandeep, gregg

Review of Action Items

Item: Implement parallel port device drivers for sun and sgi.
Who: sandeep, doi
Status: on hold pending discussion of CBI at the Pandora Meeting (11/18)

Item: Write up a plan for virtual devices and their interaction with gdb.
Who: gmo
Status: in progress

Item: Build scripting/UI capabilities above gdb for regression tests.
Who: doi
Status: on hold until the the boot, gdb boot stub, and virtual devices are complete. (estimated start date of 12/23)

Item: Implement remote gdb with the software simulator with microkernel
Who: sandeep
Status: done.

Item: Get durations for items on the schedule for hestia function test
Who: doi
Status: in progress

Here are the current estimates:

Working Boot, Gdb boot stub, Virtual Devices 6 weeks
write boot code
write gdb boot stub
write support for virtual devices
bring-up on terp
Bring-up boot on hardware simulator 2 weeks
Bring-up gdb boot stub on hardware simulator 4 weeks
Bring-up workstatation <-> hestia debug env. ?? weeks
Bring-up boot and gdb boot stub on hestia ?? weeks

Item: Identify our brinp-up tools and make sure we have plans for how we will debug them.
Who: doi, et.al.
Status: in progress

Item: Develop plan for testing real-time software before the analog
parts of calliope work.
Who: gregg
Status: done

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sun port.
Who: doi
Status: in progress (done by 11/18 [11/16])

Item: Create performance test plan
Who: jeffm, guarino
Status: no progress

Item: Add Unix-like tests to software acceptance tests.
Who: guarino
Status: no progress

Item: CerbROM support from terp.
Who: gmo, sandeep
Status: nearly done.

New Action Items

-

Item: Simulator needs to understand `reset'
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Status: in progress (due 12/23)

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Who: sandeep/gmo
Status: in progress (due 12/23)

General Discussion

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None. Looking forward to the friday pandora meeting.

Follow-up Data (This occured after the meeting but was included here)

-

After the meeting, Loretta and Guillermo got together and came up with the following:

Here are some back-of-the-envelope estimates Gmo and I came up with
after today's meeting:

We'll need to download programs: the Unix kernel is ~1 megabyte, the
digital TV application (with the microkernel) is about 200 kilobytes.
The smallest acceptance tests are 20 kilobytes.

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should be negligible; we also need a virtual disk and virtual network.
Real workstations get 3-4 megabytes per second from the disk and 1
megabyte per second from the network.

I/O buffering for realtime testing of TV application: 4 megabytes of
input and 4 megabytes of output.

We'll need support not only for hardware bring-up itself, but for
remote debugging to get the software working after we think the
hardware is working.

Cost issues: we've discussed several scenarios for connecting to Hestia from a workstation; here are additional hardware costs associated with each:

serial port:	dedicated host to poll the port
parallel port:	interface card for host
dedicated ethernet:	interface card for host
full ethernet:	interface for CBI
gpib:	interface card for host

Guillermo adds:

I wanted to add the fact that except maybe for the real-time code testing requirements, everything else mentioned is a requirement again for Pandora bringup. That is, I do envision bringin up OSF on Pandora using the virtual devices first, and then adding the PCI drivers.

From: Paul Berry [paulb@mercury]

Sent: Wednesday, November 16, 1994 6:55 PM

To: 'lisar@mercury'; 'abbott@mercury'; 'bobm@mercury'; 'tbr@mercury'; 'kgk@mercury'

Subject: html vs Frame, screen vs paper, in doc displays

Sometime fairly soon I think we should convene
a review of the types and functions of documentation
we want to produce and the audiences for whom we
want to produce them.

Specifically, I see a need to find the right mix of
highly formatted page-oriented documents
  (such as FrameMaker produces)
with user-formatted on-line documents and hypertext
(such as those supported by html and displayed by Mosaic).

There are major differences in the way these systems
view the world. Frame is oriented to giving the author very
precise control of the appearance of a document (or to
switch from one very precise appearance to another).

HTML gives all that control to the receiver rather than the
sender of a document. HTML does not permit the author
to specify a document's appearance, only its logical structure
and connectivity. HTML deals with hierachical streams of text,
but has no concept of such two-dimensional things as pages or tables.
(Despite Mosaic's use of the term "home page", it isn't a page
in the paper sense.)

This is a major issue for us because our documentation has
made heavy use of tables, but HTML has no concept of a grid of cells.
(The best it can do is take a fixed-size snapshot of a table, which
then remains undigested within the viewer's dynamically reformatted
flow of text.)

There are many very attractive things about using Mosaic to
display HTML-based documents, but it will be quite
complicated to move Frame documents to that environment.
So we need to decide what we are trying to achieve, and
choose the tools for the aims...

From: vicki [vicki@charybdis]
Sent: Wednesday, November 16, 1994 7:59 PM
To: 'Geert Rosseel'
Subject: Call your wife

Software Bringup Meeting

November 16, 1994

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From: tbr
Sent: Wednesday, November 16, 1994 9:31 PM
To: 'Paul Poenisch'
Cc: 'Curtis Abbott'; 'Albert Matthews'; 'calliope@acteon'; 'Graham Y. Mostyn'
Subject: Re: Metal changes in calliope
Follow Up Flag: Follow up
Flag Status: Red

Paul Poenisch wrote (on Wed Nov 16):

> I agree with most of your points. In talking to ras it became clear that I hadn't expressed one of the major worries that Al and I have. We all understand that the first revision of Calliope had little chance of being usable in a final product, even before the problems we now know about were discovered, because of the fact that many of the circuits would need tweeks to be fully functional. We are concerened that if the changes that we now know are needed, that haven't been included in the current revision, also need tweeks then not putting them onto the revision now means that we will need another full design turn later to incorporate those tweeks. This would mean that not only would Calliope 1 have little chance of being commercially usable but we're also admitting that Calliope 2 will not be usable. If this is the case them were saving 10 days on the schedule now at the cost of 2 months or more later (redesign, varification, fracture, mask generation, fab and test). This dosen't sound like a good trade-off.

I think there is relatively little chance of such a second order effect provided we devote a full verification effort to the revised tapeout. The errors we are discussing here are not the result of bugs undetedected in verification before the first tapeout, but rather errors in our understanding of the required functionality. Ie we built what we intended, but it turned out it was not what was actually needed as our understanding of the software matured. There will continue to be exposures of this kind till we have at least a first limping chipset (ie Calliope/Euterpe pair) which will allow realistic software to run in real time.

Tim

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Tim

From: Arya Behzad [arya@hepatu]
Sent: Wednesday, November 16, 1994 9:52 PM
To: 'hestia@hepatu'
Subject: Re: Netlist meeting minutes

> 1) Transmitter component change and prt change to be completed
> (arya/ras) by 11/15.
Done.

>
> 2) Sense lines from RO power supply; add connection traces with jumper
> to Euterpe or Calliope, with initial jumper set to Euterpe.
> (arya/woody)
Done.

> 7) Define topside castings (arya/tbe)
In progress
>
>
>
> 10) Vias to be placed tieing chip substrate to ground
> (arya/graham)
Based on several methods of estimating the via inductance, the inductance of a 32mil long, 10 mil diameter via is between 0.22nh to 0.38nh. Based on this we would need between about 15 to 30 vias for the substrate current (assuming the via inductance is the only major inductance involved and, a required 10mV ripple allowed on substrate voltage, 200mA peak spikes, and 300ps dt.) I will be looking at this issue a little more in detail, but I think the results would indicate that about 30 or 40 vias would be more than enough.
>
>
>
>
>
>
>

From: Tim B. Robinson [tbr@aphrodite]
Sent: Wednesday, November 16, 1994 9:55 PM
To: 'Mark Semmelmeyer'
Cc: 'geert@aphrodite'
Subject: euterpe/verilog/bsrc/rgxmit rgxmit.V

Mark Semmelmeyer wrote (on Wed Nov 16):

```
   Update of /p/cvsroot/euterpe/verilog/bsrc/rgxmit
   In directory medusa:/N/auspex/root/s24/mws/euterpe/verilog/bsrc/rgxmit

   Modified Files:
         rgxmit.V
   Log Message:
   rgxmit/rgxmit.V:  Evicted PC way-station to ife.  Saved 1485 atoms.
```

More, more!

Tim

.

From: tbr
Sent: Wednesday, November 16, 1994 10:41 PM
To: 'Richard Dickson'
Subject: mnemo pll in range detect
Follow Up Flag: Follow up
Flag Status: Red

Richard Dickson wrote (on Wed Nov 16):

tim,

i've got rich m's in range detector logic first cut done.
i still need to simulate it a bit more. i placed and routed it
in a tmp directory in my euterpe directory tree. i'd like to
check it in the mnemo directory tree. what are your thoughts on
where it should go ie mnemo/verilog/src/ck ???

See the last message to rich. I think it should go in
proteus/verilog/src/pl
with the rest of the PLL stuff, since these PLLs are supposed to be
generic, even though we never seem to use the same one twice!

Please have module names starting pl_ to follow th convention.

Tim

.

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What is the DC current capacity of the vias? 40 would give us about 1/2A per via which feels very comfortable to me, and in fact is likely to be considerably more than we get at the PSU end where we have double the current. Has anyone calculated this?

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Tim

From: Eldred Felias [efelias@poseidon]
Sent: Thursday, November 17, 1994 9:35 AM
To: 'B. P. Wong'
Cc: 'Geert Rosseel'
Subject: Output from "at" job (fwd)

BP,

Here is the lvs report on MB (on ISS). It seems to be complaining on the block that Orlando worked on (MBXDEC). Question: Was MBXDEC ran on Dracula or ISS? Was it ISS lvs clean? Is MBXDEC heirarchically correct? I haven't really looked over the results yet but I suspect there's probably a subcell that was flattened within another cell.

Eldred

```
==========================================================================
.whetherForwarded message:
>From root@godzilla Thu Nov 17 15:11:48 1994
>Date: Thu, 17 Nov 1994 15:11:46 -0800
>From: root@godzilla (vant)
>Message-Id: <199411172311.PAA25123@godzilla.microunity.com>
>To: efelias@godzilla
>Subject: Output from "at" job
>
>Your "at" job "6084" produced the following output:
>
>
>Working cell: mb
>Using flow: /u/chip/technology/mobimos/iss//mobilvs1_p611.vc
>Translation table for Cif To Stream:
/u/chip/tools/lib/stream/mobimos1.tbl
>
>Current working directory: /usr/local/etc/dracjobs/isslvs Current
>Layout: mb
>rm: cannot remove `.' or `..'
>rm: cannot remove `.' or `..'
>
>LTLPATH:          /a/iss
>ISSPATH:          /a/iss
>ISS_SYSTYPE:      SUN4
>ISS_LSERVER:      hestia
>
>/a/iss/SUN4_verichk/vc_engine
>
>/*********************************************************************/
> *                                                                   *
> *               IIIIIII    SSSSSS    SSSSSS                        *
> *                  I      S         S                             *
> *                  I      S         S                             *
> *                  I       SSSSS     SSSSS                        *
> *                  I            S         S                       *
> *                  I            S         S                       *
> *               IIIIIII   SSSSSS    SSSSSS                        *
> *                                                                   *
>/*********************************************************************/
>
>cdl2iss.pl
>Parsing /n/auspex/s9/efelias/vlsir/euterpe/mb.sp
>Creating schematic.iss.tmp
>Creating cell.equiv
>
>UNWIRE Hierarchical Netlist Wire Remover - Version BETA 1.7   3/10/94
>Copyright (C) Integrated Silicon Systems 1991-1993. All rights reserved.
>
```

```
>Creating composite LVS explode and flatten lists
>
>Starting date:   Thu Nov 17 09:43:15 PST 1994
>
>/u/chip/tools/bin/cifles -c mb -v
/n/auspex/s9/efelias/vlsir/euterpe/vlsi.boo -o /dev/null -A datain.dat -h
cell.equiv -I -n 15793.txt -e 1 -Y -G BBOX   -x
/u/chip/tools/lib/stream/mobimos1.tbl >>& mb.log
>Running vericheck
>     gdsin: 5.1.2 6/22/94
>     gdsout: 5.1.8 6/6/94
>     herc: 2.4.2   7/21/94
>     lsh: 2.4.15   8/18/94
>     vc_engine: 2.4.122  8/30/94
>     vp: 2.4.17   7/11/94
>VeriCheck is done.
>
>VeriCheck (R) Hierarchical Design Verification, BETA 2.4.1
>  (C) Copyright 1990, 1991, 1992, 1993, 1994.
>  Integrated Silicon Systems, Inc.  All rights reserved.
>  This product contains confidential information and trade secrets of
>  Integrated Silicon Systems, Inc.  Any use or disclosure, except as
>  authorized in writing by Integrated Silicon Systems, Inc., is
>  prohibited.  Copyright is claimed in this product as an unpublished
>  work, and the copyright notice does not imply publication.
>
>Printing individual version numbers ...
>
>     vericheck: 2.4.9   8/24/94
>
>
>Check following files for results:
>    Error File = "MB.cmperr"
>    Summary File = "MB.cmpsum"
>
>herc [options] <Netlist> <Runset>
>     -e <file>    : Redirect error messages to error file
>     -n#          : Set net size limit when printing connections
>     -b <block>   : Set block
>     -r <root>    : Set root cell
>     -s <file>    : Redirect log messages to summary file
>     -z           : Print nets with zero connections
>
>Check following files for results:
>    Error File = "MB.ercerr"
>    Summary File = "MB.ercsum"
>
>VeriCheck is done.
>
>*****************************************
>*            Compare summary            *
>    CAINVBV3 != MBINVBV3B
>    MBXDEC2 != MBXDEC2
>    CAINVBV3 != MBINVBV3A
>    MBCELL8X64 != MBCELL8X64
>    CAINVBV3 != MBINVBV3B  (level 10)
>    MBXDEC2 != MBXDEC2  (level 10)
>    CAINVBV3 != MBINVBV3A  (level 10)
>    MBCELL8X64 != MBCELL8X64  (level 7)
>    MBLBLDVR == MBLBLDVR
>    MBMCELL2X2 == MBMCELL2X2
>    BGBBCSTM == BGBBCSTM
>    CAOR3WP == CAOR3WP
>    CAOR2WP == CAOR2WP
>    MBGSA == MBGSA
>    CAOR1WP == CAOR1WP
>    MBNAND2BV3 == MBNAND2BV3
>    CAINVBV4 == CAINVBV4T
```

```
>    CAINVBV5 == CAINVBV5
>    CAXDRV == CAXDRV
>    MBLOCSA == MBLOCSA
>    BELLYBUTT == BELLYBUTT
>    CAINVBV4 == CAINVBV4
>    MBLSEL == MBLSEL
>    MBYDEC1 == MBYDEC1
>    MB8BITIO == MB8BITIO
>    MB8BITIO == MB8BITIO_R
>    MBCELL2X32 == MBCELL2X32
>    CAWRPRE8 == CAWRPRE8
>    CAWRPRE4 == CAWRPRE4
>    MBDINBUF == MBDINBUF
>    CAWRPRE4 == MBYPRE4
>    CAWRPRE2 == MBYPRE2
>    MBYDEC16 == MBYDEC16
>    MBCELL2X64 == MBCELL2X64
>    MBXPREDEC == MBXPREDEC
>    MBYPREDEC == MBYPREDEC
>    MBBITIO == MBBITIO
>    MBLBLDVR == MBLBLDVR  (level 10)
>    MBMCELL2X2 == MBMCELL2X2  (level 10)
>    BGBBCSTM == BGBBCSTM  (level 10)
>    CAOR3WP == CAOR3WP  (level 10)
>    CAOR2WP == CAOR2WP  (level 10)
>    MBGSA == MBGSA  (level 10)
>    CAOR1WP == CAOR1WP  (level 10)
>    MBNAND2BV3 == MBNAND2BV3  (level 10)
>    CAINVBV4 == CAINVBV4T  (level 10)
>    CAINVBV5 == CAINVBV5  (level 10)
>    CAXDRV == CAXDRV  (level 10)
>    MBLOCSA == MBLOCSA  (level 10)
>    BELLYBUTT == BELLYBUTT  (level 10)
>    CAINVBV4 == CAINVBV4  (level 10)
>    MBLSEL == MBLSEL  (level 9)
>    MBYDEC1 == MBYDEC1  (level 9)
>    MB8BITIO == MB8BITIO  (level 9)
>    MB8BITIO == MB8BITIO_R  (level 9)
>    MBCELL2X32 == MBCELL2X32  (level 9)
>    CAWRPRE8 == CAWRPRE8  (level 9)
>    CAWRPRE4 == CAWRPRE4  (level 9)
>    MBDINBUF == MBDINBUF  (level 9)
>    CAWRPRE4 == MBYPRE4  (level 9)
>    CAWRPRE2 == MBYPRE2  (level 9)
>    MBYDEC16 == MBYDEC16  (level 8)
>    MBCELL2X64 == MBCELL2X64  (level 8)
>    MBXPREDEC == MBXPREDEC  (level 8)
>    MBYPREDEC == MBYPREDEC  (level 8)
>    MBBITIO == MBBITIO  (level 7)
>*****************************************
>
>
>*****************************************
>*****************************************
>**                                     **
>**    THERE ARE OPENS IN YOUR CIRCUIT    **
>**       PLEASE LOOK IN MB.err       **
>**                                     **
>*****************************************
>*****************************************
>
>mv MB.sum MB.err MB.cmpsum MB.cmperr MB.net MB.ercsum MB.ercerr MB.tree
schematic.iss cell.equiv edtext.dat compare
>mv: MB.ercsum: Cannot access: No such file or directory
>mv: MB.ercerr: Cannot access: No such file or directory cp -rp compare/
>/n/auspex/s9/efelias/vlsir/euterpe/mb.compare
>cp: compare//.matched/MBLBLDVR: No such file or directory
>cp: compare//.matched/BGBBCSTM: No such file or directory
```

```
>cp: compare//.matched/CAOR3WP: No such file or directory
>cp: compare//.matched/CAOR2WP: No such file or directory
>cp: compare//.matched/MBGSA: No such file or directory
>cp: compare//.matched/CAOR1WP: No such file or directory
>cp: compare//.matched/MBNAND2BV3: No such file or directory
>cp: compare//.matched/CAINVBV4T: No such file or directory
>cp: compare//.matched/CAINVBV5: No such file or directory
>cp: compare//.matched/CAXDRV: No such file or directory
>cp: compare//.matched/CAINVBV4: No such file or directory
>cp: compare//.matched/MBLSEL: No such file or directory
>cp: compare//.matched/MBYDEC1: No such file or directory
>cp: compare//.matched/MB8BITIO: No such file or directory
>cp: compare//.matched/MB8BITIO_R: No such file or directory
>cp: compare//.matched/MBCELL2X32: No such file or directory
>cp: compare//.matched/CAWRPRE8: No such file or directory
>cp: compare//.matched/CAWRPRE4: No such file or directory
>cp: compare//.matched/MBDINBUF: No such file or directory
>cp: compare//.matched/MBYPRE4: No such file or directory
>cp: compare//.matched/MBYPRE2: No such file or directory
>cp: compare//.matched/MBYDEC16: No such file or directory
>cp: compare//.matched/MBCELL2X64: No such file or directory
>cp: compare//.matched/MBXPREDEC: No such file or directory
>cp: compare//.matched/MBYPREDEC: No such file or directory
>cp: compare//.matched/MBBITIO: No such file or directory cat mb.log >>
>/n/auspex/s9/efelias/vlsir/euterpe/mb.compare/mb.lvslog
>
>ISS LVS completed
>
>


--
```

From: Patricia Mayer [pmayer@hera]
Sent: Thursday, November 17, 1994 11:01 AM
To: 'arya@hepatu'; 'tbr@aphrodite'
Cc: 'hestia@hepatu'
Subject: Re: Netlist meeting minutes

> From tbr@aphrodite Wed Nov 16 21:14:35 1994
> Date: Wed, 16 Nov 1994 21:16:38 -0800
> From: tbr@aphrodite (Tim B. Robinson)
> To: arya@hepatu (Arya Behzad)
> Cc: hestia@hepatu
> Subject: Re: Netlist meeting minutes
> Content-Length: 1297
>
>
> Arya Behzad wrote (on Wed Nov 16):
>
> > 1) Transmitter component change and prt change to be completed
> > (arya/ras) by 11/15.
> Done.
>
> >
> > 2) Sense lines from RO power supply; add connection traces
> > with jumper to Euterpe or Calliope, with initial jumper set to
> > Euterpe. (arya/woody)
> Done.
>
> > 7) Define topside castings (arya/tbe)
> In progress
> >
> >
> >
> > 10) Vias to be placed tieing chip substrate to ground
> > (arya/graham)
> Based on several methods of estimating the via inductance, the
inductance
> of a 32mil long, 10 mil diameter via is between 0.22nh to 0.38nh.
Based
> on this we would need between about 15 to 30 vias for the substrate
> current (assuming the via inductance is the only major inductance
involved
> and, a required 10mV ripple allowed on substrate voltage, 200mA
> peak
spikes,
> and 300ps dt.)
> I will be looking at this issue a little more in detail, but I think
> the results would indicate that about 30 or 40 vias would be more
than
> enough.
> >
>
> What is the DC current capacity of the vias? 40 would give us about
> 1/2A per via which feels very comfortable to me, and in fact is likely
> to be considerably more than we get at the PSU end where we have
> double the current. Has anyone calculated this?
>
Jean-Yves calculated this last night and I added a 12X12 grid of 10 mil drill vias.
Done
> Tim
>
>
>

From: Jean-Yves Michel [yves@thalia]
Sent: Thursday, November 17, 1994 11:15 AM
To: 'tbr@aphrodite'
Cc: 'hestia@thalia'
Subject: Re: Netlist meeting minutes

Tim Robinson wrote:
> >
> > 10) Vias to be placed tieing chip substrate to ground
> > (arya/graham)
> Based on several methods of estimating the via inductance, the
inductance
> of a 32mil long, 10 mil diameter via is between 0.22nh to 0.38nh.
Based
> on this we would need between about 15 to 30 vias for the substrate
> current (assuming the via inductance is the only major inductance
involved
> and, a required 10mV ripple allowed on substrate voltage, 200mA
> peak
spikes,
> and 300ps dt.)
> I will be looking at this issue a little more in detail, but I think
> the results would indicate that about 30 or 40 vias would be more
than
> enough.
> >
>
> What is the DC current capacity of the vias? 40 would give us about
> 1/2A per via which feels very comfortable to me, and in fact is likely
> to be considerably more than we get at the PSU end where we have
> double the current. Has anyone calculated this?
>
> Tim
>

Arya's calculation relates to the vias from Calliope/Euterpe substrate (back of the die) to ground. These carry only ac current induced by the collectors and the drain of the transistors. These vias are under the spacer planes outside the tab frame area.

Regarding the vias carrying the main ground current, they connect the back of the space transformer to the board ground plane. They are immediately underneath the space transformer. I used the following calculation for the number of via:

For Euterpe, we have 25A DC current with 3A spikes, 300ps wide. In order to keep the ripple below 50mV, L = V * dt/dI = 0.050 * 150 e-12 / 3 = 2.5pH With 0.25nH per via, we need 100 vias.
On the other side Euterpe has 113 VDDE pad on the TAB, therefore 113 vias to the power plane.
Therefore, I settled for 144 (12X12) minimum size vias with 42mils space.
This cover
an area of about 11.7 mm on a side, slightly more than the space transformer area.

The same number of via was used for Calliope, which has a lower current but needs a quieter supply for the analog section.

DC wise, we should not have any problem with that many vias.

Jean-Yves

From: Jay Tomlinson [woody@demeter]
Sent: Thursday, November 17, 1994 11:18 AM
To: 'tbr@demeter'
Subject: event daemon

Tim,

yesterday scott came by and we discussed his proposed change to the event daemon. Mainly, he would like to use the HC queues instead of the SP queue. I think this is actually simpler and is likely to cost less euterpe atoms.

The only added complexity (given today's nb protocol) is that hc will have to manuf. a store response to nb. The sol'n to this will likely cause me to make store responses at the time the packet is sent to the channel. This may be able to reduce the size of the write response fifo. I hate to get into this when we may end up getting rid of store response to nb anyway.

The other main question that I had, is what address do we pick. Do we eat into the 32-bit hermes address? Do we use the upper channel address bits, which will only work for this implementation?

Just something to think about.

Jay

From: Lisa Robinson [lisar@nosferatu]
Sent: Thursday, November 17, 1994 12:10 PM
To: 'Tim B. Robinson'; 'agc@nosferatu'; 'khp@nosferatu'; 'vo@nosferatu'
Subject: so device register connections

Tim B. Robinson wrote (on Thu Nov 17):

I don't know if Tom Vo sent you a copy of his reply, but it seems that you are right and there was an error in top-level hookup that snuck thru verification. Probably cause we didn't verify the function of the spare pins.

At the toplevel we didn't verify the function of ANY of the spare pins. My ommisson.

At the system level (terp + calliope) we did verify the functionality of sisparedata1_abm, aisparedata1_abm, sosparedata2_abm and sosparedata1_abm but not sospare1_abm or sospare2_abm.

Lisa R.

> Alan Corry wrote ....
> >
> >Forwarded message:
> >>From khp@MicroUnity.com Wed Nov 16 17:59:34 1994
> >Date: Wed, 16 Nov 94 17:59:26 -0800
> >From: khp@MicroUnity.com (Kevin Peterson)
> >Message-Id: <9411170159.AA17459@spirot.microunity.com>
> >To: agc@MicroUnity.com
> >Subject: so device register connections
> >
> >
> >I've been poking around calliope.V in an attempt to update my
> >calliope.h and I found what appears to be a wrong connection. As I
> >understand it, the pi device register bit PI_LINE_SENSE uses one of
> >the so spare pins, sospare2_abm. This is consistent with the verilog
> >below. However, I couldn't find the connection of the other so device
> >register spare bit to sospare1_abm. It appears from the verilog below
> >that sospare1_abm is connected to so_data[SO_SPARE1] instead of
> >so_device_register[SO_SPARE1].
> >
> >What do you think?
> >
> >from calliope.V (lines 1869-1888):
> >#ifndef EXCLUDE_pads_tl
> > pads_tl pads_tl (
> >   vrr17, vffsw17, bufset_abm,
> >   t2cfg0, t2cfg1, t2cfg2, t2cfg3, t2cfg4, t2cfg5, t2cfg6,
> >   t2cfg0_abm, t2cfg1_abm, t2cfg2_abm, t2cfg3_abm, t2cfg4_abm, t2cfg5_abm, t2cfg6_abm,
> >   DB(ai_device_register,AI_AULOOP), auloop_abm,
> >   D(ir_pwr), irpwr_abm,
> >   DB(so_data, SO_SPARE1), sospare1_abm,

```
> >          DB(pi_device_register,PI_LINE_SENSE), sospare2_abm,
> >          ring_abm, D(pi_ring_in),
> >          D(off_hook_in), D(off_hook_out), callerid_abm, offhook_abm,
> >          D(ir_bit), irin_abm, irout_abm, D(ii_bit),
> >            DB(so_data,SO_CLK), DB(so_data,SO_RESET), DB(so_data,SO_DIRECTION),
> >          DB(so_data,SO_IO_DIRECTION), DB(so_data,SO_DATA_OUT),
> >          DB(si_data,SI_DATA_IN), srdir_abm, srclk_abm, srrst_abm , srio_abm,
> >          DB(si_data,SI_CARD_DETECT), srdetect_abm,
> >          DB(so_data, SO_SPARE_DATA1), sosparedata1_abm,
> >          DB(so_data, SO_SPARE_DATA2), sosparedata2_abm
> >          );
> >#endif EXCLUDE_pads_tl
> >
> >
> >
>
> I think you're right : sospare1_abm is mis-wired to the data register instead of the device
> register . The current connection has sospare1_abm doing the same thing as the so clock .
>
> tvo
>
>
>
```

From: Lisa Robinson [lisar@nosferatu]
Sent: Thursday, November 17, 1994 12:14 PM
To: 'Tim B. Robinson'; 'agc@nosferatu'; 'khp@nosferatu'; 'vo@nosferatu'
Cc: 'calliope@nosferatu'
Subject: so device register connections

Tim B. Robinson wrote (on Thu Nov 17):

> I don't know if Tom Vo sent you a copy of his reply, but it
> seems that you are right and there was an error in top-level
> hookup that snuck thru verification. Probably cause we didn't
> verify the function of the spare pins.

At the toplevel we didn't verify the function of ANY of the spare pins. My ommisson.

At the system level (terp + calliope) we did verify the functionality of sisparedata1_abm, aisparedata1_abm, sosparedata2_abm and sosparedata1_abm but not sospare1_abm or sospare2_abm.

Lisa R.

> >
> > Alan Corry wrote ....
> > >
> > >Forwarded message:
> > >>From khp@MicroUnity.com Wed Nov 16 17:59:34 1994
> > >Date: Wed, 16 Nov 94 17:59:26 -0800
> > >From: khp@MicroUnity.com (Kevin Peterson)
> > >Message-Id: <9411170159.AA17459@spirot.microunity.com>
> > >To: agc@MicroUnity.com
> > >Subject: so device register connections
> > >
> > >
> > >I've been poking around calliope.V in an attempt to update my
> > >calliope.h and I found what appears to be a wrong connection. As I
> > >understand it, the pi device register bit PI_LINE_SENSE uses one of
> > >the so spare pins, sospare2_abm. This is consistent with the verilog
> > >below. However, I couldn't find the connection of the other so device
> > >register spare bit to sospare1_abm. It appears from the verilog below
> > >that sospare1_abm is connected to so_data[SO_SPARE1] instead of
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> > >#ifndef EXCLUDE_pads_tl
> > > pads_tl pads_tl (
> > > vrr17 , vffsw17, bufset_abm,
> > > t2cfg0, t2cfg1, t2cfg2, t2cfg3, t2cfg4, t2cfg5, t2cfg6,
> > > t2cfg0_abm, t2cfg1_abm, t2cfg2_abm, t2cfg3_abm,
t2cfg4_abm, t2cfg5_abm, t2cfg6_abm,
> > > DB(ai_device_register,AI_AULOOP), auloop_abm,
> > > D(ir_pwr), irpwr_abm,
> > > DB(so_data, SO_SPARE1), sospare1_abm,
> > > DB(pi_device_register,PI_LINE_SENSE), sospare2_abm,
> > > ring_abm, D(pi_ring_in),
> > > D(off_hook_in), D(off_hook_out), callerid_abm,
offhook_abm,
> > > D(ir_bit), irin_abm, irout_abm, D(ii_bit),
> > > DB(so_data,SO_CLK), DB(so_data,SO_RESET),
DB(so_data,SO_DIRECTION),

```
   > >              DB(so_data,SO_IO_DIRECTION), DB(so_data,SO_DATA_OUT),
   > >              DB(si_data,SI_DATA_IN), srdir_abm, srclk_abm, srrst_abm
, srio_abm,
   > >              DB(si_data,SI_CARD_DETECT), srdetect_abm,
   > >              DB(so_data, SO_SPARE_DATA1), sosparedata1_abm,
   > >              DB(so_data, SO_SPARE_DATA2), sosparedata2_abm
   > >              );
   > >#endif EXCLUDE_pads_tl
   > >
   > >
   > >
   >
   > I think you're right : sospare1_abm is mis-wired to the data register instead of  the
device
   > register .  The current connection has sospare1_abm doing the same thing as the so
clock .
   >
   > tvo
   >
   >
   >
```

From: tbr
Sent: Thursday, November 17, 1994 3:06 PM
To: 'Jay Tomlinson'
Cc: 'craig'
Subject: event daemon
Follow Up Flag: Follow up
Flag Status: Red

Jay Tomlinson wrote (on Thu Nov 17):

> Tim,
>
> yesterday scott came by and we discussed his proposed change to the event daemon. Mainly, he would like to use the HC queues instead of the SP queue. I think this is actually simpler and is likely to cost less euterpe atoms.

I tend to agree that we had again been overlooking the negative consequences of using the slow Q. However, it does require an architectural change to define distinct daemon addreses for each channel.

> The only added complexity (given today's nb protocol) is that hc will have to manuf. a store response to nb. The sol'n to this will likely cause me to make store responses at the time the packet is sent to the channel. This may be able to reduce the size of the write response fifo. I hate to get into this when we may end up getting rid of store response to nb anyway.
>
> The other main question that I had, is what address do we pick. Do we eat into the 32-bit hermes address? Do we use the upper channel address bits, which will only work for this implementation?
>
> Just something to think about.

We need an address per hemes channel and we should allow for the possibility of implementations with more channels. However, we ought to keep them out of the 32 bit range. I think this will meen adding another term to the front end decoder in NB to drop them into the right Q. You will also have to mark them someway (probably the address is enough), so that you know what they are when they get to hc.

Tim

From: Tim B. Robinson [tbr@aphrodite]
Sent: Thursday, November 17, 1994 3:06 PM
To: 'Jay Tomlinson'
Cc: 'craig@aphrodite'
Subject: event daemon

Jay Tomlinson wrote (on Thu Nov 17):

> Tim,
>
> yesterday scott came by and we discussed his proposed change to the event daemon. Mainly, he would like to use the HC queues instead of the SP queue. I think this is actually simpler and is likely to cost less euterpe atoms.

I tend to agree that we had again been overlooking the negative consequences of using the slow Q. However, it does require an architectural change to define distinct daemon addreses for each channel.

> The only added complexity (given today's nb protocol) is that hc will have to manuf. a store response to nb. The sol'n to this will likely cause me to make store responses at the time the packet is sent to the channel. This may be able to reduce the size of the write response fifo. I hate to get into this when we may end up getting rid of store response to nb anyway.
>
> The other main question that I had, is what address do we pick. Do we eat into the 32-bit hermes address? Do we use the upper channel address bits, which will only work for this implementation?
>
> Just something to think about.

We need an address per hemes channel and we should allow for the possibility of implementations with more channels. However, we ought to keep them out of the 32 bit range. I think this will meen adding another term to the front end decoder in NB to drop them into the right Q. You will also have to mark them someway (probably the address is enough), so that you know what they are when they get to hc.

Tim

From: Jay Tomlinson [woody@clytemnestra]
Sent: Thursday, November 17, 1994 3:22 PM
To: 'Tim B. Robinson'
Cc: 'craig@aphrodite'
Subject: event daemon

Tim B. Robinson wrote (on Thu Nov 17):

> Jay Tomlinson wrote (on Thu Nov 17):
>
> > Tim,
> >
> > yesterday scott came by and we discussed his proposed change to the event daemon. Mainly, he would like to use the HC queues instead of the SP queue. I think this is actually simpler and is likely to cost less euterpe atoms.
>
> I tend to agree that we had again been overlooking the negative consequences of using the slow Q. However, it does require an architectural change to define distinct daemon addreses for each channel.
>
> > The only added complexity (given today's nb protocol) is that hc will have to manuf. a store response to nb. The sol'n to this will likely cause me to make store responses at the time the packet is sent to the channel. This may be able to reduce the size of the write response fifo. I hate to get into this when we may end up getting rid of store response to nb anyway.
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> >
> > Just something to think about.
>
> We need an address per hemes channel and we should allow for the possibility of implementations with more channels. However, we ought to keep them out of the 32 bit range. I think this will meen adding another term to the front end decoder in NB to drop them into the right Q. You will also have to mark them someway (probably the address is enough), so that you know what they are when they get to hc.
>
> Tim

This means using a unique space to identify this. We could use one space for all channels. Scott didn't seem to care much for this idea when I suggested it to him, but I don't think he was totally against it. He was more in favor of using the 32-bit range. I agree with you that we shouldn't prevent ourselves from having a bunch of memory out there.

As far as your orig plan of using the SP queue. Was this viewed as an architecture change (long term) or strickly a micro-architecture deviation from the arch (this implementation only)?

If you have some time today, could you talk to Craig about this, I don't want this to drag out.

jay

From: Mark Hofmann [hopper@rhodan]
Sent: Thursday, November 17, 1994 4:18 PM
To: 'Tim B. Robinson'
Subject: Re: forwarded message from Alan Corry

Tim B. Robinson writes:

> How do we check the licence status for this one? Is it possible we just have some stuck licences?
>
> Tim
>
> I think it might be about time we a few more licenses. I was unable to get a license this afternoon when I asked for one. Another designer, and overlap of debug on euterpe and mnemo in the next few weeks will probably cause this to happen again.

I just installed a new command "towlic" to find users of undertow.

When rich needed a license earlier this week we checked all 6 licenses were in use by 6 different people. They all appeared recent and legitimate.

-hopper

From: tbr
Sent: Thursday, November 17, 1994 11:14 PM
To: 'Lisa Robinson'
Cc: 'agc@nosferatu'; 'khp@nosferatu'; 'vo@nosferatu'
Subject: so device register connections
Follow Up Flag: Follow up
Flag Status: Red

Lisa Robinson wrote (on Thu Nov 17):

> Tim B. Robinson wrote (on Thu Nov 17):
>
> > I don't know if Tom Vo sent you a copy of his reply, but it seems that you are right and there was an error in top-level hookup that snuck thru verification. Probably cause we didn't verify the function of the spare pins.
>
> At the toplevel we didn't verify the function of ANY of the spare pins. My ommisson.
>
> At the system level (terp + calliope) we did verify the functionality of sisparedata1_abm, aisparedata1_abm, sosparedata2_abm and sosparedata1_abm but not sospare1_abm or sospare2_abm.

Please be sure we have this logged in the gnats database.

Tim

From: vant [vanthof@hestia]

Sent: Thursday, November 17, 1994 11:41 PM

To: 'Lisa Robinson'

Cc: 'Dave Van't Hof'; 'Mark Hofmann'; 'Tim B. Robinson'; 'Lisa Robinson'; 'Geert Rosseel'; 'Tom Vo'

Subject: Re: Ikos simulation

Lisa Robinson writes:
>
>
>One week ago Ikos installed the software associated with their
>hardware simulator, nsim, prior to the installation of the hardware
>scheduled for delivery during the week of November 28. This software
>includes a complete emulation environment capable of running exactly
>the same "netlist" as the hardware accelerator which allows us to
>verify our new cell libraries, netlist compiles, stimulus compiles
>etc. prior to installation of the hardware.
>
>Today we successfully ran the main euterpe datapath in this environment.
>
>YEAH!
>
>Lisa R.
>

Congratulations!

Dave

--
Dave Van't Hof vanthof@microunity.com MicroUnity Systems Engineering, Inc.
255 Caspian Way, Sunnyvale, CA (408) 734-8100 X276 #include <std_disclaim.h>
Don't blame me, I didn't vote for him!

From: tbr
Sent: Thursday, November 17, 1994 11:45 PM
To: 'hopper'
Subject: forwarded message from Alan Corry
Follow Up Flag: Follow up
Flag Status: Red

How do we check the licence status for this one? Is it possible we just have some stuck licences?

Tim

------- Start of forwarded message -------
Return-Path: <agc@ares>
Received: from ares.microunity.com by gaea.microunity.com (4.1/muse1.3)
id AA26757; Thu, 17 Nov 94 14:19:46 PST
Received: from localhost by ares.microunity.com (8.6.4/muse-sw.2)
id OAA18157; Thu, 17 Nov 1994 14:20:14 -0800
Message-Id: <199411172220.OAA18157@ares.microunity.com>
X-Mailer: ELM [version 2.3 PL11]
From: agc@ares (Alan Corry)
To: tbr@ares (Tim B. Robinson)
Cc: hopper@ares (Mark Hofmann)
Subject: undertow
Date: Thu, 17 Nov 94 14:20:13 GMT

I think it might be about time we a few more licenses. I was unable to get a license this afternoon when I asked for one. Another designer, and overlap of debug on euterpe and mnemo in the next few weeks will probably cause this to happen again.

------- End of forwarded message -------

From: tbr
Sent: Friday, November 18, 1994 12:48 AM
To: 'Mark Hofmann'
Subject: Re: forwarded message from Alan Corry
Follow Up Flag: Follow up
Flag Status: Red

Mark Hofmann wrote (on Thu Nov 17):

> Tim B. Robinson writes:
>
> > How do we check the licence status for this one? Is it possible we
> > just have some stuck licences?
> >
> > Tim
>
> I think it might be about time we a few more licenses. I was unable to get
> a license this afternoon when I asked for one. Another designer, and overlap
> of debug on euterpe and mnemo in the next few weeks will probably cause this
> to happen again.

I just installed a new command "towlic" to find users of undertow.

When rich needed a license earlier this week we checked all 6 licenses were in use by 6 different people. They all appeared recent and legitimate.

Thanks.

Tim

From: Eric Murray [ericm@MicroUnity.com]
Sent: Friday, November 18, 1994 10:01 AM
To: 'sysadm@MicroUnity.com'
Subject: disk usage report

For directories over 100 megs:
user's info:

brianl	1563
hopper	1103
chip	1033
fwo	971
geert	958
dickson	948
craig	880
tbr	868
jsw	684
rozen	577
vanthof	559
gmo	557
vijay	512
h	488
sandeep	486
brendan	479
rocky	448
qua	432
brian	417
wampler	376
fur	333
doi	315
khp	288
agc	283
ken	271
hchu	270
tom	269
tbe	265
wingard	261
veena	260
warren	250
jeffm	247
ras	236
fung	220
peter	206
rich	204
bill	203
solo	202
iimura	200
gregg	192
haim	191
lisar	189
bpw	188
mws	184
hessam	183
al	181
billz	174
vandyke	173
ericm	172

woody 167
cox 161
albers 154
guarino 153
lisa 151
randy 142
karzes 141
chuck 139
fambro 136
jeff 135
dane 132
jerry 130
octtools 130
tomho 128
mikew 127
yves 120
ong 115
paulb 112
hayes 110
larryk 103

packages info:
chip-euterpe-buil 2049
calliope 1579
news 1379
euterpe-verify 1011
soft-src 948
chip-archive 881
orchis_snap 811
chip-proteus 800
calliope-disk2 730
losf-build 693
cadence 636
ptolemy 628
archives 608
sun 571
osf 564
cadence.hp 552
calliope1-fractur 487
chip-calliope 484
chip-terpsichore 475
soft 475
sgi 377
x11r5_ken_p26 329
castor-retry 325
bosf-build 323
chip-archive-terp 318
calliope-overflow 297
bigtmp 283
mips-4.52 282
chip-archive-mnem 259
X11r4 228
bsd 222
cadence_doc 221
synopsys 216
cadence_doc_9402 215
budtool_db 190
budtool 186
Motif 177

mechanica	164
sgi5	152
ikos	150
ucberl	147
vlsi.v8r4_2	145
proe_tmp	138
ftp	134
khoros	134
proe_13.0	134
calliope-verify	132
lib	129
iimura.be	128
gnu	125
bsd43	115
frame-4.0.3	115
svr4	114
X11r5	111
chip-mdunit	105
motif1.2	101

machine	user megs	package megs	total megs	max capacity	% used
auspex	20856	19427	40283	59499	67%
rama	3738	2380	6119	9428	64%
rhea	223	1602	1826	2484	73%
gaea	5	1775	1780	1780	100%
cronus	630	2521	3152	6208	50%

auspex rama rhea gaea cronus:					
	25452	27705	53160	79399	66%

From: Jay Tomlinson [woody@luckboy]
Sent: Friday, November 18, 1994 10:04 AM
To: 'lisar@luckboy'
Cc: 'tbr@luckboy'
Subject: cmos array verification

Lisa,
Do you have any plans for verificiation of read/write of the CMOS arrays in euterpe? I bring this up because by inspection I noticed that the gtlb write enable is not asserted for enough cycles. I think the models need to be updated to make this detectable in some way (maybe writing x's).

jay

From: Lisa Robinson [lisar@nosferatu]
Sent: Friday, November 18, 1994 10:21 AM
To: 'Jay Tomlinson'
Cc: 'tbr@nosferatu'
Subject: cmos array verification

Jay Tomlinson wrote (on Fri Nov 18):

> Lisa,
> Do you have any plans for verificiation of read/write of the CMOS arrays in euterpe? I bring this up because by inspection I noticed that the gtlb write enable is not asserted for enough cycles. I think the models need to be updated to make this detectable in some way (maybe writing x's).
>
> jay

We have models in place for the icache, dcache, itag and dtag which will be picked up in the next simulator build but not yet for the gtlb and register file.

Lisa R.

From: Bob Morgan [bobm@mercury]
Sent: Friday, November 18, 1994 12:29 PM
To: 'euterpe@mercury'
Subject: Microarchitecture release 1.5

Hi,
I sent something out about this yesterday afternoon, but I don't think it ever showed up. I released version 1.5 of the microarchitecture document. The changes are listed in the change file (changes.mif).
They include updates to the opcode tables, and information on valid operations in each address space, interleaved Hermes channels, exception priority, and the new format of the instruction cache tag protection field.

As always, you can print out a copy using the Makefile, type "gmake book". Or, I can print out a bound hardcopy for whoever wants one.

Any comments or suggestions welcome.
Thanks,
Bob

.

From: tbr
Sent: Friday, November 18, 1994 12:29 PM
To: 'Bob Morgan'
Cc: 'lisar@mercury'
Subject: Re: Cerb reg. 0-2 as in TSA 4/14/94
Follow Up Flag: Follow up
Flag Status: Red

Bob Morgan wrote (on Fri Nov 18):

> The microarchitecture and TSA agree in the structure
> of cerberus registers 1-2, but not in the values.
> The ones in the TSA refer to Calliope.
> Thanks,
> Bob

According to my copy, page 176, there are definedvalues for Euterpe, not Calliope.

Tim

From: Kevin Peterson [khp@MicroUnity.com]
Sent: Friday, November 18, 1994 1:24 PM
To: 'Scott Furman'
Cc: 'Gregg Kellogg'; 'brendan@MicroUnity.com'; 'khp@MicroUnity.com'
Subject: Re: (Fwd) Realtime Software Test Plan

A while ago Scott, you were talking about using the QPSK receiver to get bits in real-time. Shouldn't we be pursuing this option as well?
Yes, it requires a working calliope (or a barely working calliope) but the QPSK functionality in calliope is probably the lowest risk interface (since it's all digital) and it's likely to work before anything else. We can definitely use the AST box to synthesize a qpsk stream on the fly.

Verifying the output is obviously much more difficult. It sure would be nice if had a high speed generic digital interface (8 bits + clock) on euterpe that we could use to output raw data. (This came up in the context of BER testing of the QAM receiver too). I wonder if it's too late to ask for this? Here too we could use the AST box to capture the data, up to the limits of our deep memory (128 MBytes). There are too many blocks in the path between the video decoder and the NTSC output so we really do need to use memory to precisely verify full frame buffers (which should be time stamped so we can compare them to simulated output frame buffers).

-Kevin

-Kevin

From: Scott Furman [fur@quetzalcoatl]
Sent: Friday, November 18, 1994 1:54 PM
To: 'Gregg Kellogg'
Cc: 'Scott Furman'; 'brendan@MicroUnity.com'; 'khp@MicroUnity.com'
Subject: Re: (Fwd) Realtime Software Test Plan

Gregg Kellogg writes:
> have more like 7.5 Meg (in an 8 Meg machine) to use as buffer space.

We need greater than 2 Meg for the four decompression frame buffers, so it's more like 5 Meg available as buffer space.

>
> I'm certainly open to other schemes if they're feasible.
>

I'm not trying to shoot you down. I'm just reminding you of what you already know: debugging of real-time code on Euterpe is going to be difficult and probably entail a good deal of cruft. A lot of these problems could have been prevented if we had thought ahead to ensure a high-speed digital interface on Euterpe.

-Scott

From: Scott Furman [fur@quetzalcoatl]
Sent: Friday, November 18, 1994 3:40 PM
To: 'Kevin Peterson'
Cc: 'gregg@quetzalcoatl'; 'brendan@quetzalcoatl'
Subject: Re: (Fwd) Realtime Software Test Plan

Kevin Peterson writes:
> Verifying the output is obviously much more difficult. It sure would > be nice if had a high speed generic digital interface (8 bits + clock) > on euterpe that we could use to output raw data. (This came up in the > context of BER testing of the QAM receiver too). I wonder if it's too > late to ask for this? Here too we could use the AST box to capture > the data, up to the limits of our deep memory (128 MBytes). There are > too many blocks in the path between the video decoder and the NTSC > output so we really do need to use memory to precisely verify full > frame buffers (which should be time stamped so we can compare them to > simulated output frame buffers).
>

The shame of it is that the I/O's to handle such an interface are already on Euterpe in the form of the LED display and keyboard interface. These lines provide a total of 12 digital outputs and 4 digital inputs, though not all of these pins are generic TTL. Early on, I suggested that Euterpe be responsible for scanning the LED display and keyboard so that these I/O's could be more generic. After all, the scan rate for these devices was going to be at most a few hundred hertz, which wouldn't put any real load on Euterpe. Unfortunately, these lines are all in the Cerberus clock domain, which renders them difficult and slow to use.

-Scott

From: paulb (Paul Berry)

Sent: Friday, November 18, 1994 8:54 PM

To: 'tbr'

Subject: Pandora notes from today's meeting

All the notes are in ~paulb/cvs/pandora/doc/notes. There's a book called pandoraNotes.book, and then individual files with names such as 941118.doc (which is today's, and the last now in the book).

It contains several known questionable items (they show with change bars in red on screen), not to mention the errors I don't know about...

From: tbr
Sent: Saturday, November 19, 1994 12:39 AM
To: 'doi'
Subject: vltree
Follow Up Flag: Follow up
Flag Status: Red

I think it could use some tuning! I have been running it against the euterpe top level and it's still going after 51 minutes!

Tim

From: doi (Derek Iverson)

Sent: Saturday, November 19, 1994 12:59 AM

To: 'tbr (Tim B. Robinson)'

Subject: vltree

Tim B. Robinson writes:
>
> I think it could use some tuning! I have been running it against the
> euterpe top level and it's still going after 51 minutes!

I haven't done anything with it since we talked about it last weekend.
Is it able to let you get things done or are you stuck?

Clearly the right thing to do is to simply have smaller designs. This
way the tool wouldn't take as long to run. :-)

How about checking with Lisa about where this should fit in my priority list
so I have an idea about how much time I should spend with it?

doi

.

From: tbr
Sent: Saturday, November 19, 1994 1:06 AM
To: 'doi (Derek Iverson)'
Subject: vltree
Follow Up Flag: Follow up
Flag Status: Red

Derek Iverson wrote (on Fri Nov 18):

> Tim B. Robinson writes:
> >
> > I think it could use some tuning! I have been running it against the
> > euterpe top level and it's still going after 51 minutes!
>
> I haven't done anything with it since we talked about it last weekend.
> Is it able to let you get things done or are you stuck?

Not stuck. In fact I think I was feeding it rather more than I needed. I think giving it the cache is what was causing it to grind to a halt. I took that out (since it was not supoposed to be in there) and it seems to have completed in around 10 mins.

> Clearly the right thing to do is to simply have smaller designs. This
> way the tool wouldn't take as long to run. :-)
>
> How about checking with Lisa about where this should fit in my priority list
> so I have an idea about how much time I should spend with it?

I'm OK for now. The vendor of the half baked verilog translator has promised to add library searching (eventually).

Tim

From: tbr
Sent: Sunday, November 20, 1994 2:05 AM
To: 'dickson'
Subject: floating inputs in cerb
Follow Up Flag: Follow up
Flag Status: Red

When I run euterpe throught he IKOS compile I see a whole load of floating inputs in cerberus. Any idea what this could be? Here's a sample:

warning [2001032,6]: pin \cerb\u03\u00\u1130\u1000\DUMMYINST4.DATA is floating
warning [2001032,6]: pin \cerb\u03\u00\u1130\u1000\DUMMYINST4.DATA is floating
warning [2001032,6]: pin \cerb\u03\u00\u1130\u1000\DUMMYINST4.DATA is floating
warning [2001032,6]: pin \cerb\u03\u00\u1130\u1000\DUMMYINST4.DATA is floating
warning [2001032,6]: pin \cerb\u03\u00\u1130\u1000\DUMMYINST4.DATA is floating
warning [2001032,6]: pin \cerb\u03\u00\u1130\u1000\DUMMYINST4.DATA is floating
warning [2001032,6]: pin \cerb\u04\u1000\u1000\u1130\u1000\DUMMYINST17.DATA is floating
warning [2001032,6]: pin \cerb\u04\u1000\u1000\u1130\u1000\DUMMYINST17.DATA is floating
warning [2001032,6]: pin \cerb\u04\u1000\u1000\u1130\u1000\DUMMYINST17.DATA is floating
warning [2001032,6]: pin \cerb\u04\u1000\u1000\u1130\u1000\DUMMYINST17.DATA is floating

From: Eric Murray [ericm@MicroUnity.com]
Sent: Sunday, November 20, 1994 10:01 AM
To: 'sysadm@MicroUnity.com'
Subject: disk usage report

For directories over 100 megs:
user's info:

hopper	1023
chip	1018
dickson	972
geert	957
tbr	943
craig	881
jsw	684
rozen	577
vanthof	559
gmo	553
hchu	548
vijay	513
h	491
sandeep	486
brendan	479
rocky	452
qua	433
brian	417
wampler	377
veena	338
fur	336
jeffm	314
doi	289
agc	282
ken	271
tom	269
tbe	245
solo	239
ras	235
fung	220
iimura	208
peter	206
rich	204
bill	203
brianl	197
gregg	191
haim	191
lisar	189
bpw	186
mws	185
hessam	183
al	181
fwo	178
ericm	172
vandyke	172
billz	161
guarino	160
cox	160
albers	158

woody 155
lisa 147
randy 142
karzes 141
chuck 139
dane 138
fambro 138
jeff 135
jerry 131
octtools 130
mikew 129
tomho 129
yves 121
ong 115
paulb 114
hayes 111

packages info:
chip-euterpe-buil 2114
calliope 1579
euterpe-verify 1011
calliope-disk2 730
losf-build 697
cadence 636
archives 608
sun 571
osf 564
cadence.hp 552
soft 520
calliope1-fractur 487
chip-calliope 484
chip-terpsichore 475
sgi 377
budtool 376
news 340
bosf-build 323
chip-archive-terp 318
calliope-overflow 297
mips-4.52 282
bigtmp 274
jeffm.old 273
chip-archive-mnem 259
X11r4 228
bsd 222
cadence_doc 221
synopsys 216
cadence_doc_9402 215
budtool_db 190
Motif 177
mechanica 164
sgi5 152
ikos 150
ucberl 147
vlsi.v8r4_2 145
proe_tmp 138
ftp 134
khoros 134
proe_13.0 134
calliope-verify 132

lib	130
iimura.be	128
gnu	125
bsd43	115
frame-4.0.3	115
svr4	114
X11r5	111
chip-mdunit	105
motif1.2	101

machine	user megs	package megs	total megs	max capacity	% used
auspex	17963	15171	33135	59499	55%
rama	3766	2371	6138	9428	65%
rhea	225	1602	1828	2484	73%
gaea	5	725	731	1780	41%
cronus	916	2566	3483	6208	56%

auspex rama rhea gaea cronus:				
22875	22435	45315	79399	57%

From: Curtis Abbott [abbott@tallis]

Sent: Monday, November 21, 1994 12:59 AM

To: 'tony@tallis'

Cc: 'paulb@tallis'; 'rfgm@tallis'; 'graham@tallis'; 'tbr@tallis'; 'mouss@tallis'

Subject: draft data sheet comments

Tony - Here are some comments on your draft data sheet. I think this is a good approach and a useful start.

Overall reactions:

1. Your data sheet is confusing because it tries to talk about everything all at once. I think it would be better to build all the data sheets, so that the later ones can refer to the earlier ones. Just as we're going to build one product on another. I've started working on a contribution -- a set of engineering driven data sheets for the Pandora-related products I think are on the table: the Pandora hardware, development software, Calliope add-in, sig gen software, sig analysis software. I'll try to have something next week sometime.

2. Your data sheet contains technical inaccuracies. The spec development process needs to be based on both two kinds of specs, driven by engineering and marketing respectively. We (engineering) need to do better in producing a concise but complete engineering spec. We've made various attempts, some of which you may not be aware of.

The main inaccuracy is due to the fact that Calliope only has one video a/d, not 3. Also, the "analog bandwidth" is somewhat different for the video/RF ins and outs -- some mix onto/off of carriers, some don't. Here are some notes towards a concise engineering spec of Calliope:

Name	Qty	Bits	SR	BW	Freq	Notes
Video in	1	8	13.5Msps	0-6MHz	baseband	
RF in	2	8	13.5Msps	0-6MHz	0-1000MHz	
Video out	3	8	13.5Msps	0-6MHz	baseband	
RF out	2	8	13.5Msps	0-6MHz	0-100MHz	
Audio in	3	16	1.69Msps	0-800KHz	baseband	16-bit to 50KHz, then less
Audio out	3	16	1.69Msps	0-800KHz	baseband	16-bit to 50KHz, then less

Notes:

The RF out DACs are actually driven at 216MHz, but I list the SR as 13.5 anyway, because that's the maximum speed software can drive it (after that, the Calliope hardware upsamples it and puts on a carrier digitally).

The RF in ADCs are actually driven at 108MHz, but the SR is 13.5 because they aren't really observable until after the digital resampler, which outputs between 8MSps and 13.5MSps.

The video DACs could all be driven at 216MHz, but there would be a problem with ring bandwidth inside Calliope. I'm not sure how hard it would be to change Calliope to be more flexible here. (It would be a

metal change, though.) I assume a similar comment applies to the video ADCs at 108MHz.

The frequency stability and accuracy of all these ins and outs will be directly related to that of the clock source driving Euterpe and Calliope.

I believe the linearity spec on the audio i/o's depends on the bandwidth of the supplied signal, and that the 16 bits applies to audio signals. I don't know the rest of the curve though. Graham knows more about this.

From: tbr
Sent: Monday, November 21, 1994 10:37 AM
To: 'dickson'; 'billz'; 'mws'; 'woody'
Cc: 'jeffm'
Subject: Euterpe status
Follow Up Flag: Follow up
Flag Status: Red

I'd like another short meeting at 11 today please to take stock of where we are.

Tim

From: lisa
Sent: Monday, November 21, 1994 11:44 AM
To: 'software-checkins-dist'
Subject: stb/include/terp terp.h

```
Update of /p/cvsroot/stb/include/terp
In directory calliope:/usr/people/lisa/src/stb/include/terp

Modified Files:
      terp.h
Log Message:

Moved the cerberus-control-register nb-level and memory-management-enable shift
definitions near the other ones, and named them consistently.
```

From: lisa
Sent: Monday, November 21, 1994 12:04 PM
To: 'Kleanthes Koniaris'
Cc: 'guarino'; 'abbott'; 'gmo'
Subject: Re: Missing opcodes?

> Dear Hackers:
>
> I have found some opcodes in the terp-opc.c file that do not seem to
> exist in the simulator's opcode-defs.h file; am I trying to do
> something wrong/stupid?
>
> `g4mux'
> `gextract0i64'
> `guextracti128'
> `gextract0i128'
> `gexpand0i64'
> `guexpand0i64'
> `gshl0i128'
> `gshr0i128'
> `gushr0i128'
> `grotr0i128'
> `gmshr0i128'

All of these are just synonyms for other instructions. The way to tell which is the "real" instruction is to choose the mnemonic which is the *first* given for a new opcode/mask pair.

For example:

```
{ "g.shufflei",          0x20000000, 0xff000000, "C=a,b,h",   I_PRRH, . . .
{ "gshufflei4mux",       0x21000000, 0xff000000, "C=A,B,h",   I_PPPH, . . .
{ "g.shufflei.4mux",     0x21000000, 0xff000000, "C=A,B,h",   I_PPPH, . . .
{ "g4mux",         0x21000000, 0xff000000, "C=A,B",     I_PPP,  . . .
{ "g.4mux",        0x21000000, 0xff000000, "C=A,B",     I_PPP,  . . .
{ "gselect8",            0x22000000, 0xff000000, "D=a,b,c",   I_PRRR, . . .
```

gshufflei4mux, g.shufflei.4mux, g4mux, and g.4mux are all the SAME instruction. The only difference between the first two and the second two is that the assembler will fill-in the appropriate values (whatever they are) for the 'h' operand if you use the short-hand "g4mux". But in the architecture, there is just one instruction (call it anything you like)
with a major opcode of 0x21. To simplify things in the simulator, we use the first string found -- "gshufflei4mux" -- for the enumeration constant, ignore any (immediately following) names with the same opcode (and mask), and then take the next opcode found ("gselect8"), and so on.

Let me know if any of that didn't make sense. (The table is definitely a delicate piece of art! ;-)

lisa

From: lisa
Sent: Tuesday, November 22, 1994 12:17 PM
To: 'software-checkins-dist'
Subject: gnu-tools/sim/terp execute.h

```
Update of /p/cvsroot/gnu-tools/sim/terp
In directory calliope:/N/auspex/root/s6/lisa/src/gnu-tools/sim/terp

Modified Files:
      execute.h
Log Message:

Cleaned-up some comments and added extern declaration for sim_done().
```

From: lisa
Sent: Tuesday, November 22, 1994 12:18 PM
To: 'software-checkins-dist'
Subject: gnu-tools/sim/terp ir.c

```
Update of /p/cvsroot/gnu-tools/sim/terp
In directory calliope:/N/auspex/root/s6/lisa/src/gnu-tools/sim/terp

Modified Files:
      ir.c
Log Message:

Moved handling of END_OCTLET from ir_io_read() into ir_io_access() so that either reading
or writing causes simulation to end.
```

From: lisar (Lisa Robinson)
Sent: Tuesday, November 22, 1994 5:51 PM
To: 'path@ikos'
Cc: 'tbr'
Subject: warning message

warning [2001001,6]: expand module euterpe because of not enough map or IIF files

Lisa R.

From: craig
Sent: Wednesday, November 23, 1994 11:03 AM
To: 'agc@echidna.microunity.com'; 'solo'
Cc: 'mnemo'; 'solo@MicroUnity.com'
Subject: Re: IMMINENT DECISION: test mode change

The proposal as it exists would be disasterous for the ability of Euterpe to use test mode to check the SRAM for defects, as it does not have the ability to generate arbitrary check patterns.

Regards
Craig

From: craig (Craig Hansen)
Sent: Wednesday, November 23, 1994 12:03 PM
To: 'agc@echidna.microunity.com'; 'solo'
Cc: 'mnemo'; 'solo@MicroUnity.com'
Subject: Re: IMMINENT DECISION: test mode change

The proposal as it exists would be disasterous for the ability of Euterpe to use test mode to check the SRAM for defects, as it does not have the ability to generate arbitrary check patterns.

Regards
Craig

From: solo (John Campbell)
Sent: Wednesday, November 23, 1994 1:07 PM
To: 'Craig Hansen'
Cc: 'agc@MicroUnity.com'; 'mnemo'; 'solo@MicroUnity.com'
Subject: Re: IMMINENT DECISION: test mode change

as Craig Hansen was saying .....
..
..The proposal as it exists would be disasterous for the ability ..of Euterpe to use test mode to check the SRAM for defects, as ..it does not have the ability to generate arbitrary check patterns.
..
..Regards
..Craig
..
does this mean you like our proposal or not?

or

do you mean that euterpe is incapable of sending a bad check byte?

regards, EMail solo@microunity.com
solo a.k.a. John Campbell phone 408 734-8100 fax 408 734-8136

From: lisa
Sent: Wednesday, November 23, 1994 3:39 PM
To: 'doi'
Subject: Re: Question about the accuracy of minor cycle counts in terp

> In one of the `regdepend' tests we noticed some cases in which the
> output `atf' claimed that two commits occured to a single register at
> one time.
>
> Is this a bug or is there some reason to explain the behaviour?

Sounds like a bug to me, but I don't know what/where it is.
Can you point me at the test case?

lisa

From: lisa
Sent: Wednesday, November 23, 1994 3:53 PM
To: 'software-checkins-dist'
Subject: gnu-tools/sim/terp cerberus.c decode.c memory.c memory.h v_mem.c

```
Update of /p/cvsroot/gnu-tools/sim/terp
In directory calliope:/N/auspex/root/s6/lisa/src/gnu-tools/sim/terp

Modified Files:
      cerberus.c decode.c memory.c memory.h v_mem.c Log Message:

Reworked lots of the cache simulation to more closely resemble the
hardware:
- There are no caches until memory-management is enabled.
- Zero is now a valid cache size.
- At initialization, the sram is allocated as buffer-size + cache-size,
  and all is usable as buffer until memory-management is enabled, at which
  point the cache-size portion at the end (higher address) of the buffer
  "becomes" the cache.
- If REALLY_ACCURATE..., the cache tags are initialized to random values.
- The protection field of the icache tag has been updated to latest uarch.
```

From: lisa
Sent: Wednesday, November 23, 1994 3:55 PM
To: 'doi'
Subject: Re: Question about the accuracy of minor cycle counts in terp

> I have the .exe and the .exe.trace files in ~doi/export with the
> prefix `regdepend_r6403_0'.
>
> The source has been punted, unfortunately.
>
> What else would make looking at this easier?

That should be enough. If it turns out not to be, I'll let you know...

thanks,
lisa

From: lisa
Sent: Wednesday, November 23, 1994 5:06 PM
To: 'doi'
Cc: 'mws'; 'gmo'
Subject: Re: Question about the accuracy of minor cycle counts in terp

> In one of the `regdepend' tests we noticed some cases in which the
> output `atf' claimed that two commits occured to a single register at
> one time.

This is happening when we have two instructions with the same destination register, but with different latencies, and the two instructions finish at the same time. We anticipated this problem somewhat, but were not sure what the hardware was going to do. Does an instruction which writes a register always stall until that register is available? (I.e., an instruction has a dependency on all of its source registers *and* on its destination register(s).) If not, what does happen?

lisa

From: lisa
Sent: Wednesday, November 23, 1994 5:37 PM
To: 'software-checkins-dist'
Subject: gnu-tools/sim/terp cerberus.c

```
Update of /p/cvsroot/gnu-tools/sim/terp
In directory calliope:/N/auspex/root/s6/lisa/src/gnu-tools/sim/terp

Modified Files:
      cerberus.c
Log Message:

Believe the cache sizes in the value written to the cerberus control register when the
memory-management-enable bit is set, unless an overriding size (via the command line or
gdb "set sim" command) has been given.
```

From: doi (Derek Iverson)
Sent: Wednesday, November 23, 1994 6:56 PM
To: 'gmo'; 'guarino'; 'sandeep'; 'jeffm'; 'wayne'; 'gregg'
Cc: 'hestia'
Subject: Software Bring-up Meeting Minutes - Nov 23, 1994

```
                Software Bringup Meeting
                ------------------------
                    November 23, 1994

Next Meeting:     November 30 at 10:00 am.

            Review of CBI related issues.
            Review of the bring-up section of the euterpe schedule.

Attendees:  jeffm, guarino, gmo, wayne, doi, sandeep


New Action Items
----------------------------------------------------------------------------
-

Item: What is dependent on SC within Euterpe? ROM & LEDs?
      Reads of cerberus registers?
Who:  wayne
Status:     [11/23] New.

Item: Continue trying to find either source code for parallel drivers
      or descriptions of hardware so we can write out own.
Who:  gmo   sgi machines
Who:  doi   sun machines
Who:  wayne HPIB driver source or HW desc. for either Sun or SGI.
Status:     [11/23] New.

Review of Action Items
----------------------------------------------------------------------------
---

Item: Implement parallel port device drivers for sun and sgi.
Who:  sandeep, doi
Status:     on hold pending discussion of CBI at the Pandora Meeting (11/18)

      Jerry K. found a driver on the Linux machine that appeared
      to handle interrupt based transactions.

      On achilles (if you have an id on the machine) you can see
      the code on /usr/src/linux/drivers/net/plipc.

Item: Write up a plan for virtual devices and their interaction with
gdb.
Who:  gmo
Status:     Done.

Item: Build scripting/UI capabilities above gdb for regression tests.
Who:  doi
Status:     on hold until the the boot, gdb boot stub, and virtual devices
      are complete. (estimated start date of 12/23)

Item: Get durations for items on the schedule for hestia function test
Who:  doi
Status:     Done.

Item: Identify our brinp-up tools and make sure we have plans for how
```

we will debug them.
Who: doi, et.al.
Status: Done.

Item: Determine which pins can be software controlled on each of the sun port.

The pins that are controlled are: select in, form feed, initialize

Who: doi
Status: Done.

Item: Create performance test plan
Who: jeffm, guarino
Status: no progress

Item: Add Unix-like tests to software acceptance tests.
Who: guarino
Status: no progress

Item: CerbROM support from terp.
Who: gmo, sandeep
Status: nearly done.

Item: Simulator needs to understand `reset'
Who: gmo
Status: in progress (due 12/23)

Item: Implement and bring-up boot, gdb boot stub, and virtual device support on the software simulator.
Who: sandeep/gmo
Status: in progress (due 12/23)

General Discussion

-

Typical discussion about CBI....

From: tbr
Sent: Thursday, November 24, 1994 2:36 PM
To: 'solo (John Campbell)'
Cc: 'agc@MicroUnity.com'; Craig Hansen; 'mnemo'; 'solo@MicroUnity.com'
Subject: Re: IMMINENT DECISION: test mode change
Follow Up Flag: Follow up
Flag Status: Red

John Campbell wrote (on Wed Nov 23):

> as Craig Hansen was saying .....
> ..
> ..The proposal as it exists would be disasterous for the ability
> ..of Euterpe to use test mode to check the SRAM for defects, as
> ..it does not have the ability to generate arbitrary check patterns.
> ..
> ..Regards
> ..Craig
> ..
> does this mean you like our proposal or not?
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> or
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> do you mean that euterpe is incapable of sending a bad check byte?

Euterpe will not send a bad check byte. Since this version on Mnemosyne will not have RAM redundancy, it's not clear to me how important it would be to have a fast way to test the RAM from Euterpe. As I understand the interest here it's comming purely from a component test perspective.

Tim

From: Tim B. Robinson [tbr@gaea.microunity.com]
Sent: Thursday, November 24, 1994 2:36 PM
To: 'John Campbell'
Cc: 'agc@MicroUnity.com'; Craig Hansen; 'mnemo@gaea.microunity.com'; 'solo@MicroUnity.com'
Subject: Re: IMMINENT DECISION: test mode change

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As I understand the interest here it's comming purely from a component test perspective.

Tim

From: geert (Geert Rosseel)
Sent: Friday, November 25, 1994 1:59 PM
To: 'rich'; 'tbr'; 'wampler'
Subject: Euterpe PLL's

Hi,

I cannot remember how we finally resolved the PLL issue with the knob-settings. I though the latest proposal was to run the PLL's with knob=6 and a tighter cycle time. Is that what's being done ?

Geert

From: rich (Rich McCauley)
Sent: Friday, November 25, 1994 2:29 PM
To: 'tbr'; 'wampler'; 'geert'
Subject: Re: Euterpe PLL's

Yes, Both the gardswarts have been reconstructed using rcd=6 and slightly tighter timing numbers.

rich

> From geert Fri Nov 25 11:58:53 1994
> Date: Fri, 25 Nov 1994 11:58:52 -0800
> From: geert (Geert Rosseel)
> To: rich, tbr, wampler
> Subject: Euterpe PLL's
> Content-Length: 212
>
>
> Hi,
>
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> knob-settings. I though the latest proposal was to run the PLL's with
> knob=6 and a tighter cycle time. Is that what's being done ?
>
> Geert
>
>

From: woody (Jay Tomlinson)
Sent: Friday, November 25, 1994 5:17 PM
To: 'euterpe'
Cc: 'jeffm'; 'bobm'
Subject: Changed to 11/6 DECISION: event daemon

Below is the mail from tbr describing the implementation of the Event Daemon register.

Recently, Scott Furman pointed out that using the NB slow peripheral queue is a problem because an Event Daemon store could be delayed waiting for a cerberus operation to complete. Thus, deadlines are missed. In order to fix this problem, there will be an Event Daemon register per channel. This allows NB to put these operations into the appropriate Hermes Channel queue.
Event
Daemon stores will now be processed in order by the Hermes Channel. In order to reduce the number of bits that are required to be decoded by NB, the Event Daemon register will be put into a unique space (hw currently implemented using space==0x81 until Craig re-assigns).

Following Craig's suggestion, the Event Daemon register store data will no longer be used to identify the event register. Now only the address. The address is decoded as follows:

```
47:40 space (hw currently uses 0x81)
39:37 channel
36:35 module address
34:3  octlet address of event register
```

Other than the above changes, the description below is still accurate.

Jay

Tim B. Robinson wrote (on Sun Nov 6):

> The following is a description of what is being implemented for the Event Daemon register.
>
> A fixed Hermes sequence ID of 7 will be used for blocking reads. This sequence ID will not be available for normal operations, but multiple blocking reads to different devices on the same ring can be outstanding simultaneously, each with sequence ID 7, distinguished by the module address. Thus up to 7 normal operations and 4 blocking reads can be outstanding on each channel simultaneously. The collision detection which prevents multiple outstanding transactions to the same address in the same device will not apply to blocking reads. This is necessary because the conflict check is only approximate, looking at 6 low order address bits, and without this exclusion, normal operations could be held off pending a blocking read return.
>
> Stores to the Event Daemon register go via NB, so back to back stores from different threads to event registers in multiple devices is supported. The Event Daemon register is decoded from the "slow peripheral" queue, and communicates directly with the appropriate Hermes channel. It is thus possible for an Event Daemon store to be processed ahead of a normal load or store previously issued to the same Hermes channel.
>
> Hardware keeps track of pending blocking reads so duplicates can be suppressed. This deals with the problem of multiple blocking reads initiated by different threads after multiple interrupts to different threads have been returned together. Software therefore does not have to provide independent synchronization to ensure only one blocking read is posted. If an interrupt is permanently masked off in the Euterpe event register and there is a possibility that for some reason this interrupt causes the blocking read to return, a deadlock can be

avoided by having a watchdog routine periodically issue another blocking read.

Software is still responsible for posting at least one blocking read for each interrupt received. ie there is no automatic hardware rescheduling of blocking reads. There is a possibility of duplicate events being signaled if another blocking read is issued by another thread before bits have been cleared in the peripheral device event register. This can be mitigated by always clearing the peripheral device event register before the corresponding bits in the Euterpe event register. However, because of possible delays in processing the store over the Hermes channel, there may still be a race here. If so, software will have to be able to handle it.

This implementation does not directly address the problem of a low priority interrupt return blocking a high priority interrupt up to the point where the new blocking read is issued.

From: tbr
Sent: Saturday, November 26, 1994 10:32 AM
To: 'geert (Geert Rosseel)'
Cc: 'rich'; 'wampler'
Subject: Euterpe PLL's
Follow Up Flag: Follow up
Flag Status: Red

Geert Rosseel wrote (on Fri Nov 25):

Hi,

I cannot remember how we finally resolved the PLL issue with the knob-settings. I though the latest proposal was to run the PLL's with knob=6 and a tighter cycle time. Is that what's being done ?

>From the proteus BOM log:

---
revision 5.603
date: 1994/11/16 14:02:01 LT; author: wampler; state: Exp; lines: +2 -2
Release Target: proteus/gardswarts/pl_euh_logic

Set target cycle time from 1000pS down to 800pS to compensate for going from resistor code 5 to resistor code 6.

From: tbr (Tim B. Robinson)
Sent: Saturday, November 26, 1994 10:32 AM
To: 'geert (Geert Rosseel)'
Cc: 'rich'; 'wampler'
Subject: Euterpe PLL's

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proteus/gardswarts/pl_euh_logic

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5 to resistor code 6.
----------------------------
```

From: hopper (Mark Hofmann)
Sent: Saturday, November 26, 1994 11:08 AM
To: 'Geert Rosseel'
Subject: Re: .pim file in gf

Geert Rosseel writes:

Hi Mark,

In the snapshot :
/n/auspex/s41/euterpe-snapshot/euterpe/verilog/bsrc/gf

there seems to be a problem with the Makefile that creates gf-base.pim

In gf.pim (the source) , there are a bunch of spacer cells to create
a 20 atom gap in the middle. However, these are not in gf-base.pim.

Geert

Hi Geert,

Technically speaking this is called a "bug". It's been fixed- what version of proteus/Makefile.rules did you use to create gf? The latest released version (released at 22:18 on 23 Nov) should fix this. I'm running gf now and it looks good so far. I noticed that the 0s cells are missing in _all_ passes except the first in the snapshot. In my area they are present in pass2 and
pass3 and in this iteration of "iter" (I don't know how many gf takes).
So,
I think the bug is fixed. [You can check -hopper/chip/euterpe/verilog/bsrc/gf for results .]

-mark

From: tbr
Sent: Saturday, November 26, 1994 4:26 PM
To: 'tom'
Cc: 'geert'; 'wampler'
Subject: leafcell problem
Follow Up Flag: Follow up
Flag Status: Red

I have bee re-running the make in the proteus snapshot to pick up some changes in the latest BOM.

I see the following which looks serious to me. Is this just one of the known failures?

VERCON Version 7.1.20 of March 30, 1994

...reading nets...
24 Nets Read
...reading components...
68 Components Read
...reading physical types...
9 Physical Types Read
...reading logical types...
**** routing progress = 0; no routing information in dff

Terminated at : 94/11/26 14:22:10
Elapsed CPU time : 0 Hrs 0 Mins 0 Secs
Elapsed wall clock time : 0 Hrs 0 Mins 0 Secs
*** gastatus detects error with vercon (see /usr/tmp/leafmold.xbmuxffb2dh16s)
gmake[4]: *** [/n/auspex/s23/euterpe-proteus-cp/compass/leaf/xbmuxffb2dh16s.ly] Error 1

From: tbr (Tim B. Robinson)
Sent: Saturday, November 26, 1994 4:26 PM
To: 'tom'
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```

From: tbr
Sent: Saturday, November 26, 1994 8:19 PM
To: 'brianl'; 'fwo'
Cc: 'bpw'; 'geert'; 'rich'
Subject: Pin name problem
Follow Up Flag: Follow up
Flag Status: Red

I cannot get the build to run to completion in the proteus snapshot
after updating to the latest BOM. The problem is relate to the
logic0/1 pin name change. Something does not appear to have
been updated. Please let me know as soon as you understand what is
the cause, so I can pick up the fix and continue the build.
For reference, there is a full log of the problem at the end of
/N/auspex/root/s23/euterpe-proteus-cp/makerrs

Here's the interesting bit:

```
<lnk>#1 ERROR(145): Pin name does not exist
    Drawing: "XBC01DF4S".SPICE.1.1
        No parameters
    Body: "R50M" (Path="8P")
    Unfound pin: "LOGIC1_AB0PF"

    Drawing: "IOCLKWART".SPICE.1.1
        No parameters
    Body: "XBC01DF4S" (Path="4P")
    Pins of the body:
      "VRR"<2..0>
      "VII"
      "LOGIC1_0P"
      "LOGIC0_0P"


<lnk>#2 ERROR(145): Pin name does not exist
    Drawing: "XBC01DF4S".SPICE.1.1
        No parameters
    Body: "BJT" (Path="7P")
    Unfound pin: "LOGIC0_AB0PF"

    Drawing: "IOCLKWART".SPICE.1.1
        No parameters
    Body: "XBC01DF4S" (Path="4P")

MicroUnity Spice Interface Version 1.93
No Copyright (C) 1990 Valid Logic Systems, Inc.

Processing Scald directories                (00:00:01.76)
Calling ValidCompiler ...
(00:00:49.46)

Fatal error(s) found while compiling
Please correct the design and rerun the program
```

MicroUnity Spice Interface run on Nov 26 18:14:20 1994
DESIGN NAME : 'IOBYTE'
DESIGN COMPILATION ON Nov 26 18:14:21 1994

2 errors detected
No oversight detected
1 warnings detected

From: tbr (Tim B. Robinson)
Sent: Saturday, November 26, 1994 8:19 PM
To: 'brianl'; 'fwo'
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From: brianl (Brian Lee)
Sent: Saturday, November 26, 1994 11:46 PM
To: 'Tim B. Robinson'
Cc: 'fwo (Fred Obermeier)'; 'bpw (B. P. Wong)'; 'geert (Geert Rosseel)'; 'rich (Rich McCauley)'; 'tom (Thomas Laidig)'
Subject: Re: Pin name problem

Tim B. Robinson writes:

> I cannot get the build to run to completion in the proteus snapshot
> after updating to the latest BOM. The problem is relate to the
> logic0/1 pin name change. Something does not appear to have been
> updated. Please let me know as soon as you understand what is the
> cause, so I can pick up the fix and continue the build.

Based on comments in the cvs log, I opened and wrote out the schematic for ioclkwart to "pick-up the new pin names". My local copy of the schematic now passes the ged2verilog invocation. I have committed and released this version of ioclkwart.

Please let me know if this truly fixes the problem or if it only makes matters worse.

Brian

> For reference, there is a full log of the problem at the end of
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>
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--
Brian L.

From: Geert Rosseel [geert@rhea]
Sent: Sunday, November 27, 1994 1:14 PM
To: 'geert@rhea'
Subject: pager log message

```
page from geert to geert:
pageme gmake geert_euterpegards start:Nov_27_10:48 end: Nov_27_11:12 exit
1
```

From: John Campbell [solo@gaea.microunity.com]
Sent: Monday, November 28, 1994 9:14 AM
To: 'Tim B. Robinson'
Cc: 'agc@MicroUnity.com'; Craig Hansen; 'mnemo@gaea.microunity.com'; 'solo@MicroUnity.com'
Subject: Re: IMMINENT DECISION: test mode change

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..Tim
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regards, EMail solo@microunity.com
solo a.k.a. John Campbell phone 408 734-8100 fax 408 734-8136

From: solo (John Campbell)
Sent: Monday, November 28, 1994 9:14 AM
To: 'Tim B. Robinson'
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regards,
solo a.k.a. John Campbell phone 408 734-8100 fax 408 734-8136 EMail solo@microunity.com

From: Eric Murray [ericm@MicroUnity.com]
Sent: Monday, November 28, 1994 10:01 AM
To: 'sysadm@MicroUnity.com'
Subject: disk usage report

For directories over 100 megs:
user's info:

brianl	1458
hopper	1084
chip	1020
geert	958
craig	880
fwo	851
tbr	741
jsw	684
hchu	625
dickson	619
gmo	603
rozen	577
vanthof	559
h	507
sandeep	487
brendan	479
vijay	457
rocky	453
qua	434
brian	417
wampler	403
veena	382
fur	333
doi	323
khp	288
agc	282
jeffm	279
ken	279
tom	269
wingard	261
ras	259
tbe	251
fung	220
woody	217
iimura	213
rich	206
peter	206
bill	202
haim	191
gregg	190
lisar	189
bpw	187
hessam	184
al	181
mws	176
guarino	173
ericm	172
solo	172
vandyke	170

cox 162
billz 162
albers 161
lisa 159
karzes 145
dane 143
randy 142
chuck 139
jeff 135
pmayer 134
octtools 130
tomho 130
mikew 127
fambro 123
yves 120
paulb 117
ong 115
hayes 111
larryk 103
joe 101

packages info:
chip-euterpe-buil 2118
calliope 1579
news 1185
euterpe-verify 1011
soft-src 948
chip-archive 888
orchis_snap 811
chip-proteus 809
losf-build 776
calliope-disk2 730
cadence 633
ptolemy 628
archives 608
sun 572
osf 564
cadence.hp 552
soft 538
calliope1-fractur 487
chip-calliope 484
chip-terpsichore 475
sgi 377
x11r5_ken_p26 329
castor-retry 325
chip-archive-terp 318
calliope-overflow 297
mips-4.52 282
chip-archive-mnem 259
X11r4 228
bsd 222
cadence_doc 221
synopsys 216
cadence_doc_9402 215
budtool 191
Motif 177
mechanica 164
lib 163
sgi5 152

ikos	150
ucberl	147
vlsi.v8r4_2	145
ftp	134
khoros	134
proe_13.0	134
calliope-verify	132
iimura.be	128
gnu	125
bsd43	115
frame-4.0.3	115
svr4	114
X11r5	111
chip-mdunit	105
motif1.2	101

machine	user megs	package megs	total megs	max capacity	% used
auspex	20672	19140	39812	59499	66%
rama	3427	2106	5534	9428	58%
rhea	224	1603	1828	2484	73%
gaea	5	1601	1607	1780	90%
cronus	922	2585	3507	6208	56%

auspex rama rhea gaea cronus:					
	25250	27035	52288	79399	65%

From: woody (Jay Tomlinson)
Sent: Monday, November 28, 1994 10:37 AM
To: 'jeffm'
Cc: 'lisar'; 'tbr'
Subject: eventdaemoneasy

Jeff,
The euterpe event register is never cleared. After reset it is X's and since it is never written, it will be read out as X's causing the pass1_wait loop to go to X's.

Jay

From: lisa
Sent: Monday, November 28, 1994 10:59 AM
To: 'software-checkins-dist'
Subject: gnu-tools/sim/terp ir.c

```
Update of /p/cvsroot/gnu-tools/sim/terp
In directory calliope:/N/auspex/root/s6/lisa/src/gnu-tools/sim/terp

Modified Files:
      ir.c
Log Message:

In ir_io_init(), be sure to free any old disk or tape names.
```

From: tbr
Sent: Monday, November 28, 1994 11:02 AM
To: 'fwo (Fred Obermeier)'
Cc: 'bpw'; 'geert'
Subject: Celltest rerun.
Follow Up Flag: Follow up
Flag Status: Red

Fred Obermeier wrote (on Sun Nov 27):

> Tim,
>
> The io01ffdh6s and tlbm1col have never been run through celltest.
> I'll start rerunning the other cells, though I suspect we're going to get
> lots more celltest failures now that the rcode and voltage comparison levels
> have changed. The Csyn/Celltest meetings never got around to discussing
> the problems with the voltage comparison ranges we are currently running with.

It concerns me that tlbm1col should never have been run, since the TLB in some form has been essentially 'done' for about a year now. I thought for custom structures csyn and celltest we pre-requisites to running LVS. I realise recent changes may have invalidated those results, but clearly we need a big push here to get euterpe clean.

Tim

From: tbr (Tim B. Robinson)
Sent: Monday, November 28, 1994 11:02 AM
To: 'fwo (Fred Obermeier)'
Cc: 'bpw'; 'geert'
Subject: Celltest rerun.

Fred Obermeier wrote (on Sun Nov 27):

> Tim,
>
> The io01ffdh6s and tlbm1col have never been run through celltest.
> I'll start rerunning the other cells, though I suspect we're going to get
> lots more celltest failures now that the rcode and voltage comparison levels
> have changed. The Csyn/Celltest meetings never got around to discussing
> the problems with the voltage comparison ranges we are currently running with.

It concerns me that tlbm1col should never have been run, since the TLB in some form has been essentially 'done' for about a year now. I thought for custom structures csyn and celltest we pre-requisites to running LVS. I realise recent changes may have invalidated those results, but clearly we need a big push here to get euterpe clean.

Tim

From: tbr
Sent: Monday, November 28, 1994 11:05 AM
To: 'woody (Jay Tomlinson)'
Cc: 'jeffm'; 'lisar'
Subject: eventdaemoneasy
Follow Up Flag: Follow up
Flag Status: Red

Jay Tomlinson wrote (on Mon Nov 28):

> Jeff,
> The euterpe event register is never cleared. After reset it is X's and since it is never written, it will be read out as X's causing the pass1_wait loop to go to X's.

You have to write the event register and mask registers prior to leaving event mode.

Tim

From: bpw (B. P. Wong)
Sent: Monday, November 28, 1994 11:33 AM
To: 'fwo'; 'tbr'
Cc: 'bpw'; 'geert'
Subject: Re: Celltest rerun.

> Fred Obermeier wrote (on Sun Nov 27):
>
> Tim,
>
> The io01ffdh6s and tlbm1col have never been run through celltest.
> I'll start rerunning the other cells, though I suspect we're going
> to
get
> lots more celltest failures now that the rcode and voltage
> comparison
levels
> have changed. The Csyn/Celltest meetings never got around to
discussing
> the problems with the voltage comparison ranges we are currently
running with.
>
> It concerns me that tlbm1col should never have been run, since the TLB
> in some form has been essentially 'done' for about a year now. I
> thought for custom structures csyn and celltest we pre-requisites to
> running LVS. I realise recent changes may have invalidated those
> results, but clearly we need a big push here to get euterpe clean.
>
> Tim
>
The TLB passed celltest more than a year ago. We have been through this six months ago and this argument is back again! We used to have the automatic checkin of the ctgold directory to show that it has been done. Has that directory been destroyed?

bpw

From: fwo (Fred Obermeier)
Sent: Monday, November 28, 1994 11:41 AM
To: 'tbr'
Cc: 'bpw'; 'fwo'; 'geert'
Subject: Re: Celltest rerun.

Tim wrote,
Fred Obermeier wrote (on Sun Nov 27):

> Tim,
>
> The io01ffdh6s and tlbm1col have never been run through celltest.
> I'll start rerunning the other cells, though I suspect we're going to get
> lots more celltest failures now that the rcode and voltage comparison levels
> have changed. The Csyn/Celltest meetings never got around to discussing
> the problems with the voltage comparison ranges we are currently running with.

> It concerns me that tlbm1col should never have been run, since the TLB
> in some form has been essentially 'done' for about a year now. I
> thought for custom structures csyn and celltest we pre-requisites to
> running LVS. I realise recent changes may have invalidated those
> results, but clearly we need a big push here to get euterpe clean.

> Tim

Actually, there is another possibility for the current lack of these celltest results. Previous results are usually wiped away manually before running the final top-level celltest run. Also, previous results are invalidated by any change to the csyn.rules, csyn.signame, or celltest*stim voltage files. Since I've been making lots of changes to these files over the last few months, previous celltest runs should be rerun anyway.

Fred.

From: bpw (B. P. Wong)
Sent: Monday, November 28, 1994 11:44 AM
To: 'fwo'; 'tbr'
Cc: 'bpw'; 'geert'
Subject: Re: Celltest rerun.

> > It concerns me that tlbm1col should never have been run, since the
> > TLB in some form has been essentially 'done' for about a year now.
> > I thought for custom structures csyn and celltest we pre-requisites
> > to running LVS. I realise recent changes may have invalidated those
> > results, but clearly we need a big push here to get euterpe clean.
> >
> > Tim
> >
> The TLB passed celltest more than a year ago. We have been through
> this six months ago and this argument is back again! We used to have
> the automatic checkin of the ctgold directory to show that it has been
> done. Has that directory been destroyed?
>
> bpw
>
The following is log of the celltest on tlbm1col that is still in
~chip/proteus//celltest/ctgold.500v/tlbm1col/log.ct:

```
* time:          Tue Dec 28 17:17:16 1993
* user:          bpw@frodo
* command:       /a/muse/bin/sun4/celltest -chip proteus -maxstates 2048
-tstep
* command:       1e-9 -conditions 500v mod8.sp

        passed swing conformance test on tlbm1col.tr0
        massage succeeded
Running ttcmpr                tlbm1col:  logic compare passed on tlbm1col
        passed celltest tlbm1col
        Updating gold directory ctwork.500v.mod8/tlbm1col/hspice
                copying to
/u/chip/proteus/celltest/ctgold.500v/tlbm1col/hspice
Compressing the hspice log in the gold directory
/u/chip/proteus/celltest/ctgold.500v/tlbm1col/hspice
        Removing
/u/chip/proteus/celltest/ctgold.500v/tlbm1col/hspice/tlbm1col.tr0
        Updating gold directory ctwork.500v.mod8/tlbm1col/verilog
                copying to
/u/chip/proteus/celltest/ctgold.500v/tlbm1col/verilog
```

From: ong (Warren R. Ong)
Sent: Monday, November 28, 1994 11:48 AM
To: 'Geert Rosseel'
Subject: Re: Touching Bases

>From Geert Rosseel ...
@
@ Hi Warren,
@
@ Everything is going pretty weel here. I am still working on the @ top-level of Euterpe. It'll be a little while before we're done.
@
@ I am definitelly noticing that there is one less engineer in the group.

hmmm... that could be good or bad. It's good (for you) if you've noticed you have less troubles and re-work. But, I'll take that in the positive sense. - Thanks!

@ I am looking forward to you back here. However, enjoy your time @ with the baby. You'll be very happy later you've taken the time off.
@
@ We do have a working BJT, NMOS & PMOS. They are not perfect yet but @ the Gummel & I/V curves look pretty good. Al is going to start optimizing @ the devices now. Metal is also looking pretty good.

If there is anyone who can tune the process, it has to be Al.
This is encouraging news.

Did anyone save me a glass of champagne?

@
@ Have a Happy Thanksgiving !!!

Thanks, it was quite a meaningful day for me. It was my first one with my very own family!

--
Warren.

From: tom (Tom Laidig)
Sent: Monday, November 28, 1994 11:49 AM
To: 'Tim B. Robinson'
Cc: 'geert (Geert Rosseel)'; 'wampler (Kurt Wampler)'; 'tom (Thomas Laidig)'
Subject: Re: leafcell problem

Tim B. Robinson writes:

> I have bee re-running the make in the proteus snapshot to pick up some
> changes in the latest BOM.
>
> I see the following which looks serious to me. Is this just one of the
> known failures?

...

```
> *** gastatus detects error with vercon (see
/usr/tmp/leafmold.xbmuxffb2dh16s)
> gmake[4]: ***
[/n/auspex/s23/euterpe-proteus-cp/compass/leaf/xbmuxffb2dh16s.ly] Error 1
```

Yup, that's one of the nasties. It's one that seems to work OK with the formula I haven't yet checked in, but sadly there are others that still fail.

--

```
    ooooO   Ooooo
    (  _)   (_  )
     \(  tau  )/
     (_)     (_)
```

From: lisa
Sent: Monday, November 28, 1994 1:41 PM
To: 'software-checkins-dist'
Subject: gnu-tools/sim/terp memory.h memory.c

```
Update of /p/cvsroot/gnu-tools/sim/terp
In directory calliope:/N/auspex/root/s6/lisa/src/gnu-tools/sim/terp

Modified Files:
      memory.h memory.c
Log Message:

Record only a pointer to the reg_dep_t of the destination register, not to the whole
reg_ptrs structure for this non-blocking load instruction.
(When not executing out of the icache or ibuffer, the decoded instruction, containing the
reg_ptrs structure, is temporary -- and thus not guaranteed to be around/valid when the
load completes.)
```

From: lisa
Sent: Monday, November 28, 1994 3:39 PM
To: 'software-checkins-dist'
Subject: gnu-tools/sim/terp memory.h

```
Update of /p/cvsroot/gnu-tools/sim/terp
In directory calliope:/N/auspex/root/s6/lisa/src/gnu-tools/sim/terp

Modified Files:
      memory.h
Log Message:

Use an unused memory space, not rom, for UV's uncached memory space.
```

From: lisa
Sent: Monday, November 28, 1994 3:42 PM
To: 'rhunt'
Subject: mmap problem

I just checked-in a fix, but that won't show up until tonight's build.
Until then, you can use ~lisa/bin/sgi5/terp, which has the fix in it.

lisa

From: lisa
Sent: Monday, November 28, 1994 4:34 PM
To: 'software-checkins-dist'
Subject: gnu-tools/sim/terp stbio.c

```
Update of /p/cvsroot/gnu-tools/sim/terp
In directory calliope:/N/auspex/root/s6/lisa/src/gnu-tools/sim/terp

Modified Files:
      stbio.c
Log Message:

Cover all threads with 0 to NUM_THREADS, not FIRST_G_THREAD to LAST_R_THREAD.
```

From: chip (Buffalo Chip)
Sent: Monday, November 28, 1994 5:39 PM
To: 'geert'
Subject: output of euterpe/verilog/bsrc/lt/.checkoutrc

The output from euterpe/verilog/bsrc/lt/.checkoutrc is 192k, so it is not included in this mail message. Instead, check the file

/n/tmp/chiplog/geert.staypuft.14190.euterpe-verilog-bsrc-lt

(which is accessible from all machines). This file will disappear in about 5 days.

By the way, the exit status returned by .checkoutrc was 0.

From: michael (Chris Michael)
Sent: Monday, November 28, 1994 6:23 PM
To: 'euterpe'
Subject: CSM model update

Design Folks,

CSM has provided updated models for their foundry process. There are two significant changes (well, really there's only one):

1. Delta-W is reduced for PMOS. This affects narrow width PMOS devices.

2. Models will allow simulations down to L=0.45um, W=1um. However, minimum physical dimensions should still be L=0.6um, W=1.2um. The sub-minimum models are in place to aid in model smoothing. This shouldn't affect anything.

As always, comments/suggestions are welcome.

Chris

From: chip (Buffalo Chip)
Sent: Monday, November 28, 1994 6:48 PM
To: 'geert'
Subject: output of euterpe/verilog/bsrc/ctiod/.checkoutrc

The output from euterpe/verilog/bsrc/ctiod/.checkoutrc is 160k, so it is not included in this mail message. Instead, check the file

/n/tmp/chiplog/geert.staypuft.19444.euterpe-verilog-bsrc-ctiod

(which is accessible from all machines). This file will disappear in about 5 days.

By the way, the exit status returned by .checkoutrc was 0.

From: geert (Geert Rosseel)
Sent: Monday, November 28, 1994 7:29 PM
To: 'billz'; 'brianl'; 'dickson'; 'hopper'; 'mws'; 'tbr'; 'vo'; 'woody'
Subject: Euterpe placements

Hi,

These are the things we want to get done before rerunning the top-level placement of Euterpe (planned for Wednesday).

gf : create 20 atom gap and make two 64 bit sections.
Rich

rg : insert extra row in control section of
block next to cr
shift control of bypass section into gf
Geert

mc : create straight right edge in control
section
Hopper

xlu : check in and release latest placement
Tom

nb : release in /u/chip and rebuild in snapshot
Rebuild in snapshot is currently happening

mst: limit right edge to less than 548.
Rich

cdio : distribute VREF generators on a byte-wide
pitch
Woody

lt : move section next to ctiod up such that it aligns
with ctiod
Woody

iq, cp, cj, ctioi : placements of all 4 blocks
Brianl

From: woody (Jay Tomlinson)
Sent: Monday, November 28, 1994 11:42 PM
To: 'doi'; 'lisar'; 'tbr'; 'tom'; 'chip'
Cc: 'euterpe-checkins-dist'
Subject: Release of BOMs by woody (euterpe)

PAGELIST: woody geert

Checkin Message: ----------
aligned vref with data

BOM Update in euterpe BOM 3.131
BOM Update in euterpe/verilog BOM 3.95
BOM Update in euterpe/verilog/bsrc BOM 184.2
BOM Release in euterpe/verilog/bsrc/cdio BOM 36.0

From: hopper (Mark Hofmann)
Sent: Tuesday, November 29, 1994 4:08 AM
To: 'geert (Geert Rosseel)'
Subject: pager log message (fwd)

```
Buffalo Chip writes:
   From chip@rhea Tue Nov 29 10:00:22 1994
   Date: Tue, 29 Nov 1994 10:00:13 -0800
   From: chip@rhea (Buffalo Chip)
   Message-Id: <199411291800.KAA28639@rhea.microunity.com>
   To: hopper@rhea
   Subject: pager log message

   page from chip to hopper:
   Release euterpe/verilog/bsrc/mc BOM 45.0 initiated by hopper completed @ Tue Nov 29
09:58:08 PST 1994 with exit status 0.. chip

   all ports busy
   all ports busy
   all ports busy
   all ports busy
   all ports busy
   all ports busy
   all ports busy
   all ports busy
   all ports busy
   all ports busy
   all ports busy


  -thanks,
   hopper


  thanks,
  mark hofmann
  hopper@microunity.com
  408  734 8100
```

From: hopper (Mark Hofmann)
Sent: Tuesday, November 29, 1994 4:19 AM
To: 'Fred Obermeier'
Cc: 'tbr (Tim B. Robinson)'
Subject: Re: 1548 / 1548

Fred Obermeier writes:
The .checkoutrc does not run celltest since this is a very long running job.
The proteus/leafgen/Makefile does have a do-celltest target that reruns all
of the xb* leaf cells if they are out of date. Currently this target is
only set up for the nominal condition. I'll need to change this for
rcd1, rcd5, rcd6, and rcd7. This increases celltest's disk space needs
for /u/chip/proteus/ctgold.nom by a factor of 4.
I don't think we have enough disk space for this yet.
The Makefile will rerun celltest if any of the source files change.
Therefore, celltest will be rerun on all 1548 cells. However, if the
ged2lvs results (minus comments) are the same as previous runs, celltest
will skip the cell and say that this cell has passed before.

Fred.

Okay. If we have disk space problems let's definitely make sure we have all circuits covered for rcd6. Then rcd7, then 5, then 1. Disk space should not hold up these runs.

Do you have an uptodate netlist of Euterpe for celltesting?

What is the status there?

thanks,
-hopper

From: billz (Bill Zuravleff)
Sent: Tuesday, November 29, 1994 9:43 AM
To: 'euterpe'
Cc: 'billz (Bill Zuravleff)'
Subject: Makefile woes

Y'all,
  Help, I can't seem to size small pieces of my designs.
  This used to work! If I want to size via topt a portion of my design -- say just a pla
-- using the /u/chip/proteus/Makefile.defs and .rules, I could say "gmake file.size" or
more recently "gmake gards/file-pass1.size".
Then, the following chain of rules are executed:
.v (v2e) -> .v2e
.v2e (emerge) -> .edif
.edif (topt) -> .stat
.stat (atoms) -> .size

Right?

But this breaks almost immediately. The .v2e target rule is now in
/u/chip/euterpe/verilog/bsrc/Makefile.share as:

```
$(GARDS_DIR)/%.v2e: $(GARDS_DIR)/%.v2e.config vfiles
    #
    # Take a snooze to make sure vfiles looks older than the .v2e file
    # when they are on different NFS file systems
    #
    sleep 10
    $(V2E) -f vfiles -o $@ -c $(GARDS_DIR)/$*.v2e.config -l $(GARDS_DIR)/$*.v2e.
log $(LIB_DIRS) $(V2E_LIBS)
```

But this uses "vfiles" as its argument and so v2e's my entire design, not just the file of
interest.

I don't see a .v2e target in the /u/chip/proteus/Makefile.rules.
(Possibly it got moved to Makefile.share?)

Suggestions?

Thanks,
billz

From: ken (Ken Hsieh)
Sent: Tuesday, November 29, 1994 11:12 AM
To: 'tbr'
Subject: Re: forwarded message from Charlie Root

Tim,

I do not sure why Budtool reported this error message.
The volume incr_3 was there and used it to back up data successfully.

Ken

> From tbr Tue Nov 29 09:08:03 1994
> Date: Tue, 29 Nov 1994 09:08:01 -0800
> From: tbr (Tim B. Robinson)
> To: ken
> Subject: forwarded message from Charlie Root
> Content-Length: 694
>
> ------- Start of forwarded message -------
>
> What do these messages really mean? They seem to happen frequently:
>
> The BudTool Auto-Scheduler needs help.
>
> Not all of the volumes have been loaded into the
> media server.
>
> Schedule: monday2-incr
> Media Server: stacker0
> Media Server Host: auspex0
>
> -Volumes Missing----------
> incr_3
>
> -Volumes Found----------
> incr_4 (*)
> incr_5 (*)
> incr_6 (*)
> incr_7 (*)
>
> (*) With some media servers, such as stackers,
> it is not possible to check all volumes. These
> volumes are assumed to be in the media server.
>
> This backup is scheduled to begin 'Mon Nov 28 22:00:00 1994'.
>
>
> ------- End of forwarded message -------
>

From: Curtis Abbott [abbott@tallis]
Sent: Tuesday, November 29, 1994 11:18 AM
To: 'Tom Eich'
Cc: 'Arya Behzad'; 'Graham Y. Mostyn'; 'hestia@tallis'; 'John Tang'; 'Tim B. Robinson'
Subject: 3/4 BTSC converter

We have written software to do ch. 3/4 out. The current software is probably too simple, because it lacks filtering between video and audio, but even so it uses more cycles (over 8% of Euterpe) than are available when we're doing mpeg. There should be plenty of cycles available with analog video, so we can test it that way to verify and demonstrate functionality, but for a spin that goes into trials or something like that, we should definitely plan to add a can to the pcb.

- Curtis

From: Buffalo Chip [chip@rhea]
Sent: Tuesday, November 29, 1994 11:42 AM
To: 'geert@rhea'
Subject: pager log message

```
page from chip to geert:
Release euterpe/verilog/bsrc/cj BOM 77.0 initiated by brianl completed @ Tue Nov 29
09:39:26 PST 1994 with exit status 0.. chip

lock read: File exists
all ports busy
all ports busy
all ports busy
all ports busy
all ports busy
all ports busy
all ports busy
all ports busy
all ports busy
all ports busy
all ports busy
all ports busy
```

From: Buffalo Chip [chip@rhea]
Sent: Tuesday, November 29, 1994 11:59 AM
To: 'geert@rhea'
Subject: pager log message

```
page from chip to geert:
Release euterpe/verilog/bsrc/mc BOM 45.0 initiated by hopper completed @ Tue Nov 29
09:58:08 PST 1994 with exit status 0.. chip
```

From: Eric Murray [ericm@MicroUnity.com]
Sent: Tuesday, November 29, 1994 12:05 PM
To: 'Mark Hofmann'
Cc: 'sysadm@MicroUnity.com'
Subject: Re: pager log message (fwd)

Mark Hofmann wrote:
>
> Buffalo Chip writes:
> From chip@rhea Tue Nov 29 10:00:22 1994
> Date: Tue, 29 Nov 1994 10:00:13 -0800
> From: chip@rhea (Buffalo Chip)
> Message-Id: <199411291800.KAA28639@rhea.microunity.com>
> To: hopper@rhea
> Subject: pager log message
>
> page from chip to hopper:
> Release euterpe/verilog/bsrc/mc BOM 45.0 initiated by hopper completed @ Tue Nov 29 09:58:08 PST 1994 with exit status 0.. chip
>
> all ports busy
> all ports busy
> all ports busy
> all ports busy
> all ports busy
> all ports busy
> all ports busy
> all ports busy
> all ports busy
> all ports busy
> all ports busy
>
> Is this a problem on our end?

too many pages going out.

when i wrote it i didn't think it'd be used as much as is is, so
i didn't write a fancy page queuing system.

looks like i'll need to do so soon.
in the mean time i can up the waiting period, that'll keep
each paging process trying longer.

--
ericm ericm@microunity.com

From: Buffalo Chip [chip@rhea]
Sent: Tuesday, November 29, 1994 12:05 PM
To: 'geert@rhea'
Subject: pager log message

```
page from chip to geert:
Release euterpe/verilog/bsrc/ctioi BOM 12.0 initiated by brianl completed @ Tue Nov 29
10:03:16 PST 1994 with exit status 0.. chip

all ports busy
all ports busy
all ports busy
all ports busy
all ports busy
all ports busy
all ports busy
all ports busy
all ports busy
all ports busy
all ports busy
all ports busy
```

.

From: tbr
Sent: Tuesday, November 29, 1994 12:10 PM
To: 'Curtis Abbott'
Cc: 'Arya Behzad'; 'Graham Y. Mostyn'; 'hestia@tallis'; 'John Tang'; 'Tom Eich'
Subject: 3/4 BTSC converter
Follow Up Flag: Follow up
Flag Status: Red

Curtis Abbott wrote (on Tue Nov 29):

> We have written software to do ch. 3/4 out. The current software is probably too simple, because it lacks filtering between video and audio, but even so it uses more cycles (over 8% of Euterpe) than are available when we're doing mpeg. There should be plenty of cycles available with analog video, so we can test it that way to verify and demonstrate functionality, but for a spin that goes into trials or something like that, we should definitely plan to add a can to the pcb.

Unless it is out long term plan to always use a can, I would advocate figuring out how to use an external converter of the type used with some cam-corders (craig has an example). Otherwise we may find ourselves having to enlarge the box again just to habndle a contingency.

Tim

From: Tim B. Robinson [tbr@tallis]
Sent: Tuesday, November 29, 1994 12:11 PM
To: 'Curtis Abbott'
Cc: 'Arya Behzad'; 'Graham Y. Mostyn'; 'hestia@tallis'; 'John Tang'; 'Tom Eich'
Subject: 3/4 BTSC converter

Curtis Abbott wrote (on Tue Nov 29):

> We have written software to do ch. 3/4 out. The current software is probably too simple, because it lacks filtering between video and audio, but even so it uses more cycles (over 8% of Euterpe) than are available when we're doing mpeg. There should be plenty of cycles available with analog video, so we can test it that way to verify and demonstrate functionality, but for a spin that goes into trials or something like that, we should definitely plan to add a can to the pcb.

Unless it is out long term plan to always use a can, I would advocate figuring out how to use an external converter of the type used with some cam-corders (craig has an example). Otherwise we may find ourselves having to enlarge the box again just to habndle a contingency.

Tim

From: Graham Y. Mostyn [graham@tallis]
Sent: Tuesday, November 29, 1994 12:28 PM
To: 'abbott@tallis'; 'tbr@tallis'
Cc: 'arya@tallis'; 'graham@tallis'; 'hestia@tallis'; 'jt@tallis'; 'tbe@tallis'
Subject: Re: 3/4 BTSC converter

> From tbr@tallis Tue Nov 29 10:10:46 1994
> Date: Tue, 29 Nov 1994 10:10:30 -0800
> From: tbr@tallis (Tim B. Robinson)
> To: abbott@tallis (Curtis Abbott)
> Cc: arya@tallis (Arya Behzad), graham@tallis (Graham Y. Mostyn),
hestia@tallis,
> jt@tallis (John Tang), tbe@tallis (Tom Eich)
> Subject: 3/4 BTSC converter
> Content-Length: 827
>
>
> Curtis Abbott wrote (on Tue Nov 29):
>
> We have written software to do ch. 3/4 out. The current software is
> probably too simple, because it lacks filtering between video and
> audio, but even so it uses more cycles (over 8% of Euterpe) than are
> available when we're doing mpeg. There should be plenty of cycles
> available with analog video, so we can test it that way to verify and
> demonstrate functionality, but for a spin that goes into trials or
> something like that, we should definitely plan to add a can to the
> pcb.
>
> Unless it is out long term plan to always use a can, I would advocate
> figuring out how to use an external converter of the type used with
> some cam-corders (craig has an example). Otherwise we may find
> ourselves having to enlarge the box again just to habndle a
> contingency.
>
> Tim

We are going to obtain some samples of modulators, and investigate this further. It is expected that several existing components will be ultimately dropped for volume production, allowing some space to be saved within the existing outline.

Certainly this question does not affect our immediate plan to release the existing PCboard.
Graham.

From: mws (Mark Semmelmeyer)
Sent: Tuesday, November 29, 1994 1:34 PM
To: 'hopper'; 'brianl'; 'geert'; 'billz'; 'woody'
Cc: 'ericm'
Subject: Re: Returned mail: Cannot send message for 3 days

```
> From Mailer-Daemon Tue Nov 29 11:30:00 1994
> Date: Mon, 28 Nov 1994 17:19:51 -0800
> From: Mailer-Daemon (Mail Delivery Subsystem)
> Subject: Returned mail: Cannot send message for 3 days
> Content-Length: 1517
>
> The original message was received at Fri, 25 Nov 1994 17:13:57 -0800
> from mws@localhost
>
>    ----- The following addresses had delivery problems -----
> billz@gaea  (unrecoverable error)
>     (expanded from: billz)
> brianl@gaea  (unrecoverable error)
>     (expanded from: brianl)
> dickson@demeter  (unrecoverable error)
>     (expanded from: dickson)
> hopper@gaea  (unrecoverable error)
>     (expanded from: hopper)
> tbr@gaea  (unrecoverable error)
>     (expanded from: tbr)
> woody@gaea  (unrecoverable error)
>     (expanded from: woody)
> geert@ambiorix  (unrecoverable error)
>     (expanded from: geert)
> mws@gaea  (unrecoverable error)
>     (expanded from: mws)
>
>    ----- Transcript of session follows ----- Message could not be
> delivered for 3 days Message will be deleted from queue
>
>    ----- Original message follows -----
> Return-Path: <mws>
> Received: from localhost by clytemnestra.microunity.com
(8.6.4/muse-sw.3)
>     id RAA19350; Fri, 25 Nov 1994 17:13:57 -0800
> Date: Fri, 25 Nov 1994 17:13:57 -0800
> From: mws (Mark Semmelmeyer)
> Message-Id: <199411260113.RAA19350@clytemnestra.microunity.com>
> To: billz, brianl, dickson, hopper, tbr, woody, geert
> Subject: Re: Snapshot Status
> Cc: mws
>
> I tried to update rgxmit_control.pim, but now the process seems to be
> stuck looking for rgxmit-pass1 cell in
> /u/chip/euterpe/compass/vlsi.boo-all.
>
> This was a painful procedure.  Pim dependencies seem unenforced in the
> makefiles and I couldn't find any leftover files saying what cells
> were not placed.  What is the better way to be doing this?
>
>
```

From: geert (Geert Rosseel)
Sent: Tuesday, November 29, 1994 1:51 PM
To: 'billz'; 'brianl'; 'geert'; 'hopper'; 'mws'; 'tbr'; 'vo'; 'woody'
Subject: Euterpe snapshot

Hi,

Here is the state of the snapshot :

BLOCK	running on machine	STATUS		BOM	Who	
EUTERPE	:			183.0		
AU	:	FAILED TIMING		18.0		
AT	:	BAD PLACEMENT		24.0		
CC	:	BAD PLACEMENT		25.0		
CDIO	:	O.K.	36.0			
CJ	:	O.K.	77.0			
CK	:	O.K.	18.0			
CP	:	BAD PLACEMENT		21.0		Brian
CTIOD	:	O.K.		14.0		
CTIOI	:	O.K.	12.0			
DR	:	O.K.	45.0			
DRIO	:	O.K.	10.0			
ES	:	FAILED TIMING		68.0		
GF	:	O.K.	21.0			
GT	:	O.K.	57.0			
HC	:	BAD PLACEMENT		65.0		
HZ	:	BAD PLACEMENT		9.0		
ICC	:	BAD PLACEMENT		9.0		
IFE	:	BAD PLACEMENT		9.0		
IO	:	O.K.	25.0			
IQ	: tomato		45.0			
LT	: ghidra		72.0			
MC	:	O.K.	45.0			
MST	:	O.K.	24.0	Rich		
NB	:	O.K.	86.0			
RG	: tomato		86.0			
RGXMIT	:	BAD PLACEMENT		16.0	Hopper	
SR	:	O.K.	41.0			
UU	:	NO PLACEMENT				
XLU	: staypuft		40.0			

From: Curtis Abbott [abbott@tallis]
Sent: Tuesday, November 29, 1994 2:05 PM
To: 'Tim B. Robinson'
Cc: 'Arya Behzad'; 'Graham Y. Mostyn'; 'hestia@tallis'; 'John Tang'; 'Tom Eich'
Subject: 3/4 BTSC converter

Tim B. Robinson wrote (on Tue Nov 29):

> ...
> Unless it is out long term plan to always use a can, I would advocate
> figuring out how to use an external converter of the type used with
> some cam-corders (craig has an example). Otherwise we may find
> ourselves having to enlarge the box again just to habndle a
> contingency.
>
> Tim

I believe it is rational to plan to always use a can for two reasons:
(1) The RF modulate function is well defined, standardized, not subject to change, commoditized, and uses readily available analog signals.
(2) The fully burdened cost (meaning including chip, chip packaging, power supply, heat sink, etc.) of the Euterpe cycles is much greater than that of the can.

If Euterpe cycles were to become more numerous and 1/3 of their current cost, the second argument would be weakened, but the first would be as valid.

- Curtis

From: lisa
Sent: Tuesday, November 29, 1994 2:52 PM
To: 'djc'
Subject: Re: odd terp message

```
> I get the following message -
>
> LISA: Ifetch from icache, *DIRECTLY*!?!?
>
> I have a program that is larger than will fit in the default ibuf so I
run
> terp with --ib 32k.   I get this message when it do a
>
> blinki 0x800000c074b0

Sorry, but I need more information, like a pointer to the executable.
(That error is only supposed to occur when you are trying to fetch an instruction from a
physical address beyond the end of the ibuffer.
The code in the simulator looks fine, so I need something with which to debug it.)

lisa
```

From: vanthof (vant)
Sent: Tuesday, November 29, 1994 3:18 PM
To: 'dtacmo (Dominador Tacmo)'; 'vikki (Vikki Vu)'
Cc: 'vanthof (Dave Van't Hof)'; 'hopper (Mark Hofmann)'; 'geert (Geert Rosseel)'
Subject: all vdd extraction done

Vikki and Tacmo,
I've finished the extraction of the vdd cif files and created the appropriate links in your compass/euterpe directories. If you 'notice' you
local compass library or restart compass (on a large sparc10), you should now see these files.

Thanks,
Dave
--
Dave Van't Hof vanthof@microunity.com MicroUnity Systems Engineering, Inc.
255 Caspian Way, Sunnyvale, CA (408) 734-8100 X276 #include <std_disclaim.h> Don't blame me, I didn't vote for him!

From: ras (Bob Sutherland)
Sent: Tuesday, November 29, 1994 3:32 PM
To: 'Graham Y. Mostyn'
Cc: 'pandora'
Subject: Re: Digital video

>
> Bob, in discussing with various people the I/O required on Pandora for
> software development, it seems useful to incorporate at least one
> digital video input and perhaps an output. The data rate is 270 Mbit/s.
>

I'm unclear as to the question, here. The output already runs at 216MS/s, and the carrier can be set to zero. You then get video output at baseband.

Then the next question is, why do we need 270MS/s at the input? If we interleave the I/Q streams we get the equivalent of 216 MS/ as is (if we set the carrier to zero).

Who in the software area requested this? It would be easier if I could talk directly to him/her.

> How could we best do this, assuming only metal changes on Calliope
> and any reasonable amount of board design? Alan questions the idea of
> direct interface to Euterpe to resolve bandwidth concerns, because that path
> does not provide a buffer memory.
>

Neither of the above requires a metal change as far as I can tell.

> If we don't require a qpsk receive function, can we use that section, perhaps
> oversampling the serial stream and avoiding the need for a PLL?
>

The qpsk receiver is a 1bit ADC sampled at 648 MS/s. I need to know more about the resolution requirement.

> Any ideas? Thanks - Graham.
>

Lot's. Some are even useful :-).

--
"No!No!.. Don't pull on that.. you never know what it's attached to."

RAS

From: ras (Bob Sutherland)
Sent: Tuesday, November 29, 1994 3:54 PM
To: 'Graham Y. Mostyn'
Cc: 'pandora'
Subject: Re: Digital video

>
> The digital video input that I was referring to is a purely digital
> serial bit stream referred to as D1 (or D2). This has been set by
> various world standards to carry 8 bit color video information.
> The rate is fixed at 270Mbit/s. (I think you were thinking of analog video.)
>

Is this the CCIR-601 standard?

And yes, I was thinking of analog video.

> The context is that there would be a quantity of MPEG encoded video material
> on disk, which would feed into the Pandora system via a suitable
> digital I/O port. It would serve as source material for software developemnt.
>

If the data stream is indeed serial (1-bit) the QPSK receiver can
oversample the carrier (270MS/s) at 648MS/s and treat the serial bit
as a symbol. The DDS in the QPSK then is set to rotate at some
multiple of the the 270MS/s rate and the Integrate and Dump accumulator output
can be used as an Early/Late PLL lock to the signal. Unfortunately,
this may place quite a strain on Euterpe during acquisition, but it
should take only a little attention to keep locked.

As for the transmitter, we would probably have to build something in
SOFA to generate the serial stream at 270MS/s. The only transmitter
is clocked at 216MS/s.

--
"No!No!.. Don't pull on that.. you never know what it's attached to."

RAS

From: lisa
Sent: Tuesday, November 29, 1994 4:13 PM
To: 'software-checkins-dist'
Subject: gnu-tools/sim/terp memory.c

```
Update of /p/cvsroot/gnu-tools/sim/terp
In directory calliope:/N/auspex/root/s6/lisa/src/gnu-tools/sim/terp

Modified Files:
      memory.c
Log Message:

Only initialize rom, cerberus, and calliope if RUNNING_KERNEL.
```

From: lisa
Sent: Tuesday, November 29, 1994 4:16 PM
To: 'software-checkins-dist'
Subject: gnu-tools/sim/terp siminit.c

```
Update of /p/cvsroot/gnu-tools/sim/terp
In directory calliope:/N/auspex/root/s6/lisa/src/gnu-tools/sim/terp

Modified Files:
      siminit.c
Log Message:

Better handling of zero-length (i.e. non-existant) special sections (.onchip_text, .rom,
etc.) in the executable being loaded.
```

From: lisa
Sent: Tuesday, November 29, 1994 4:17 PM
To: 'software-checkins-dist'
Subject: gnu-tools/sim/terp simgdb.c run.c

```
Update of /p/cvsroot/gnu-tools/sim/terp
In directory calliope:/N/auspex/root/s6/lisa/src/gnu-tools/sim/terp

Modified Files:
      simgdb.c run.c
Log Message:

Modified both versions of sim_err() to call sim_done() if sim_running, which will perform
the necessary clean-up and longjmp to the "right"
place.
```

From: lisa
Sent: Tuesday, November 29, 1994 6:11 PM
To: 'software-checkins-dist'
Subject: gnu-tools/sim/terp memory.c cerberus.c

```
Update of /p/cvsroot/gnu-tools/sim/terp
In directory calliope:/N/auspex/root/s6/lisa/src/gnu-tools/sim/terp

Modified Files:
      memory.c cerberus.c
Log Message:

I made a bad assumption in my previous modifications for enabling the caches, which was
that memory-management would only be enabled when presently disabled.  These changes cause
subsequent (redundant) writes to the cerberus control register to be innocuous.
```

From: lisa
Sent: Tuesday, November 29, 1994 6:21 PM
To: 'djc'
Subject: Re: odd terp message

> The test is ..../stb/stand/diag/memhi/nb_2.exe

Thanks.

I just checked-in some changes so that tomorrow's simulator should not have this problem.

FYI -- Your test initializes cerberus register #6 (the control register) twice, which should not have caused a problem with the simulator, but it did. Nevertheless, I thought you might not be aware that the two memory-management enables (second one being redundant) were happening. One should be sufficient. ;-)

Finally, if you have a test (such as this one, from what I can tell) which executes out of the buffer only, you should just initialize the cache szes to 0 when writing to the cerberuscontrol register.
Then you won't need the "--ibuffer-size 32k --dbuffer-size 32k" on every invocation of terp, and the simulator won't have to allocate and initialize a bunch of cache data structures that will never even be used.

Let me know if you have any more cache-related problems.

lisa

From: brianl (Brian Lee)
Sent: Tuesday, November 29, 1994 8:44 PM
To: 'Geert Rosseel'
Subject: Re: cp

Geert Rosseel writes:

> Hi Brian,
>
> If you have problems placing cp because of I/O powers too large, why don't you force all I/O power levels to 2s.
>
> After it is all placed at the top-level, I can more accurately estimate the I/O power-levels. We can then do aonther iteration.
>
> Geert

OK. Good idea. I've done that and am releasing cp now. You are on the page list. It won't pass timing, but at least its placement should not conflict with the other sub-blocks. I think that it is still going to be difficult to make all these subblocks work.

I will try a gmake brianl_euterpegards and see what happens.

--
Brian L.

From: paulb (Paul Berry)
Sent: Wednesday, November 30, 1994 12:11 PM
To: 'tbr'
Subject: Pandora notes

I've incorporated revisions you gave me regarding the Nov 17
(marketing) meeting, but I still need your corrections to my fuzzy
reporting of parts of the Nov 18 discussion that I wrote up
as "data transfer between workstation and Hestia".

I'll leave you a printout of the current set of notes, with a PostIt
yellow sticky on the part that needs your review.

I will release the notes so they appear in /u/chip/pandora/doc/notes.
(I'm finally getting to understand the 'make' and 'releasebom' procedures
well enough to release things smoothly.)
Bob Morgan has made progress in bringing up Frameviewer under
the Mosaic web browser, and I think the Pandora notes will then
be visible (in Frame format, not html) from within Mosaic.

Policy question:
I added the e-mail memo that Graham addressed to the group.

I was thinking of also adding a reduced and edited summary of yesterday's
flurry of discussion of digital video.

But please confirm: are these mail discussions things that you would like
to have incorporated into the notes file? (It seemed to me they were
a continuation of the discussion by other means and therefore should be in,
but one might argue that everyone concerned already has access to the mail,
so that inserting summaries is redundant.)

From: Buffalo Chip [chip@rhea]
Sent: Wednesday, November 30, 1994 12:30 PM
To: 'geert@rhea'
Subject: pager log message

```
page from chip to geert:
Release euterpe/verilog/bsrc/iq BOM 46.0 initiated by brianl completed @ Wed Nov 30
10:27:46 PST 1994 with exit status 1.. chip

lock read: File exists
all ports busy
all ports busy
all ports busy
all ports busy
all ports busy
all ports busy
all ports busy
all ports busy
all ports busy
all ports busy
all ports busy
```

From: paulb (Paul Berry)

Sent: Wednesday, November 30, 1994 12:55 PM

To: 'tbr'

Subject: Pandora specification

I have put together a Frame document that is intended
as a shell for a Pandora spec.

At first I expected it would be a simple matter to just
pull in fragments from existing documents. But I found
it harder than I had expected to find appropriate material.
The existing material was mostly architectural overview
that really didn't say anything much about specs. So this is
a VERY rough first cut.

What I have so far is in :
~paulb/cvs/pandora/doc/spec/spec.book
It has three chapers:
Architecture
Hardware
Software
The table of contents specTOC.doc ought to serve as an outline.

Some of the things in there are copied from last January's
draft of the Hestia spec, and are clearly incorrect here, but may
serve as reminders that something like them is needed.

In a product that gets much of its functionality
from software, the "Software" section of the spec seems
to me likely to be much larger than one would usually find
in a more hardware-based product-- but I haven't yet
found material about the software a developer would need to
use the testing and analysis functions. Curtis suggests we
break out two hardware and three software specs:
Hardware: Euterpe
Calliope
Software Developers,
Signal Generation,
Testing/Characterization.

From: geert (Geert Rosseel)
Sent: Wednesday, November 30, 1994 2:33 PM
To: 'billz'; 'brianl'; 'dickson'; 'geert'; 'hopper'; 'mws'; 'tbr'; 'vo'; 'woody'
Subject: Euterpe snapshot

Hi,

New list of things to do.
New top-level placement of Euterpe is
planned for Friday

As usual, if you release a BOM in /u/chip, please page me (releasebom -P geert)

iq, cp, cj, ctioi : placements of all 4 blocks
fix obstruction mask problem
Brianl

cp : Check if power levels can be reduced
Rich

xlu : restore older version with control on
both sides
Tom Vo

mst : reduce height with 5 rows
Rich

mc : shift control section by some number of
atoms to the left. Tom Vo knows how much is
allowed.
Hopper

cc : place
x0 = 1629
y0 = 404
height < 82 rows
Rich

hc : place
Jay

at : place
x0 = 480
y0 = 404
height up to dcache
width up to spar at left of GTLB
Jay

io0 : place
x0 = 160
y0 = 660
height up to dcache
Hopper

nb : move to fill gap above xlu
check for fan-out problems (< 50ps margin paths)
Geert

dr : align right edge
check for fan-out problems (< 50ps margin paths)

Billz

icc : place
x0 = 2938
1 spar-section wide.
place under the iq, cj, cp, section such that
the top of icc aligns with the bottom of the
TBL, Icachae
Hopper

ife : size estimate
Rich

uu : size estimate
Mark (S.)

lt : shift long narrow part to the right by 16 atoms.
shorten the long row in the lower part of lt.
Jay

hz : place
x0 = 2938
y0 = 527
one spar-section wide
Rich

From: paulb (Paul Berry)

Sent: Wednesday, November 30, 1994 3:13 PM

To: 'tbr'

Subject: Euterpe and Calliope spec sheets

In Mouss' lunchtime talk, he mentioned that he had "sent the spec sheets for Euterpe and Calliope" to PictureTel.

What did he send them? Can I use whatever it was as a prototype?

From: doi (Derek Iverson)
Sent: Wednesday, November 30, 1994 8:00 PM
To: 'jeffm'; 'guarino'; 'gmo'; 'sandeep'; 'gregg'; 'wayne'; 'iimura'; 'doi'
Cc: 'hestia'
Subject: Software Bring-up Meeting - November 30, 1994

Software Bringup Meeting

November 30, 1994

Next Meeting: December 7 at 10:00 am.

Attendees: jeffm, guarino, gmo, gregg, doi, sandeep

New Action Items

-

Item: Define and implement a snapshot environment for the HW and SW simulators.
Who: jeffm, gmo
Status: [11/30] new.

Jeff is going to start the process off with an e-mail message summarizing the current thoughts on the subject.

Item: Get the cycle count for oc-mem test that ran on the hardware simulator.
Who: doi
Status: [11/30] new.

Derek will ask lisar if the data is still around.

Review of Action Items

Item: What is dependent on SC within Euterpe? ROM & LEDs?
Reads of cerberus registers?
Who: wayne
Status: [11/23] No progress.

Item: Continue trying to find either source code for parallel drivers or descriptions of hardware so we can write out own.
Who: gmo sgi machines
Who: doi sun machines
Who: wayne HPIB driver source or HW desc. for either Sun or SGI.
Status: [11/23] progress continues.

We are no longer a Sun Catalyst member.
Out SGI Systems Integrator is going to investigate what it would take to become a SGI developer (like Catalyst) to see if that would get us the support (info) we need.

Item: Implement parallel port device drivers for sun and sgi.
Who: sandeep, doi
Status: on hold pending discussion of CBI at the Pandora Meeting (11/18)

Jerry K. found a driver on the Linux machine that appeared to handle interrupt based transactions.

On achilles (if you have an id on the machine) you can see
the code on /usr/src/linux/drivers/net/plipc.

Item: Build scripting/UI capabilities above gdb for regression tests.
Who: doi
Status: on hold until the the boot, gdb boot stub, and virtual devices
are complete. (estimated start date of 12/23)

Item: Create performance test plan
Who: jeffm, guarino
Status: [11/30] no progress

Item: Add Unix-like tests to software acceptance tests.
Who: iimura
Status: [11/30] no progress

Item: CerbROM support from terp.
Who: gmo, sandeep
Status: Done.

Item: Simulator needs to understand `reset'
Who: gmo
Status: [11/30] not started (due 12/23)

Item: Implement and bring-up boot, gdb boot stub, and virtual device
support on the software simulator.
Who: sandeep/gmo
Status: in progress (due 12/23)

General Discussion

-

Jeffm gave a short summary of what is left to be developed for Euterpe and his estimate of order.

nb anit-use
load use stuff
uncached execution
sync ops

We also decided to start tracking the progress of running tests on the hardware simulator in this meeting.

From: tbe@MicroUnity.com
Sent: Wednesday, November 30, 1994 10:45 PM
To: 'abbott@MicroUnity.com'
Cc: 'tbr@MicroUnity.com'; 'arya@MicroUnity.com'; 'graham@MicroUnity.com'; 'hestia@MicroUnity.com'; 'jt@MicroUnity.com'
Subject: Re: 3/4 BTSC converter

On November 29, Curtis Abbott wrote:

>Tim B. Robinson wrote (on Tue Nov 29):
>
> ...
> Unless it is out long term plan to always use a can, I would advocate
> figuring out how to use an external converter of the type used with
> some cam-corders (craig has an example). Otherwise we may find
> ourselves having to enlarge the box again just to habndle a
> contingency.
>
> Tim
>
>I believe it is rational to plan to always use a can for two reasons:
>(1) The RF modulate function is well defined, standardized, not subject
>to change, commoditized, and uses readily available analog signals.
>(2) The fully burdened cost (meaning including chip, chip packaging,
>power supply, heat sink, etc.) of the Euterpe cycles is much greater
>than that of the can.
>
>If Euterpe cycles were to become more numerous and 1/3 of their current
>cost, the second argument would be weakened, but the first would be as
>valid.
>
>- Curtis

I agree with your reasons, and add further (based upon our brief conversation today) that whether or not Hestia is first deployed for analog or digital conversion, the space and provisions for a 3/4 BTSC converter in a can should be in the design, for reasons of upgradability and completeness.

Therefore I will file a tkgnat on this and look for the results of the converter can survey Graham mentioned for the next revision of the pcb. In fact, I'd like to get my 2 cents in on the physical parameters of such a can. I'm concerned about fitting it in based on particular physical constraints such as at the rear panel more than on total pcb area.

-Tom

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